DIRECTORATE FOR EDUCATION AND SKILLS

STARTING STRONG TEACHING AND LEARNING INTERNATIONAL SURVEY 2018 CONCEPTUAL FRAMEWORK
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Acknowledgements

Abstract

The Starting Strong Teaching and Learning International Survey 2018 is an international survey of staff and centre leaders working in early childhood education and care (ECEC), administered in ECEC centres belonging to ISCED Level 0.2, and, as an option, centres providing services for children under the age of 3. The Conceptual Framework provides an integrated theoretical and analytical underpinning to the survey that articulates its research foci and links to existing knowledge and evidence and policy questions. The key themes include those mainly concerned with: ECEC staff-child interaction (process quality of staff-child interaction and monitoring and assessment of children's development, well-being and learning); ECEC centre characteristics (structural quality characteristics, pedagogical and administrative leadership, climate, and stakeholder relations); ECEC leader and staff characteristics (background and initial preparation, professional development, well-being, professional beliefs about children's development, well-being and learning, and self-efficacy); and the cross-cutting theme of equity and diversity in the child group.

Résumé

L'Enquête TALIS Petite enfance 2018 est une enquête internationale menée auprès des personnels et responsables des structures d'éducation et d'accueil des jeunes enfants (EAJE) au niveau 02 de la CITE et, facultativement, des structures accueillant des enfants de moins de trois ans. Le cadre conceptuel offre à l'enquête une base théorique et analytique intégrée sur laquelle reposent les axes de recherche et qui fait le lien avec les connaissances et données existantes ainsi qu'avec les questions qui se posent quant à l'action des pouvoirs publics. Les principaux sujets abordés portent sur les interactions entre le personnel d'EAJE et les enfants (qualité des processus d'échanges entre le personnel et les enfants, de suivi et d'évaluation du développement, du bien-être et de l'apprentissage des enfants) ; sur les caractéristiques des structures d'EAJE (qualité structurelle, direction pédagogique et administrative, climat et relations avec les parties prenantes) ; sur les caractéristiques des responsables et personnels d'EAJE (expérience et formation initiale, développement professionnel, bien-être, convictions professionnelles à propos du développement, du bien-être et de l'apprentissage des enfants, perception de sa propre efficacité) ; et sur le thème transversal de l'équité et de la diversité parmi les enfants.

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List of acronyms

ADHD	Attention deficit hyperactivity disorder
BONDS	Behavior Outlook Norwegian Developmental Study
CLASS	Classroom Assessment Scoring System
DAP	Developmentally appropriate practice
DEEWR	Australian Department of Education, Employment and Workplace Relations
ECEC	Early childhood education and care
ECLS-K	United States Early Childhood Longitudinal Study, Kindergarten Class
EPPE	Effective Provision of Pre-school Education
ExCELL	Exceptional Coaching for Early Language and Literacy
EYLF	Australian early years learning framework
IEA	International Association for the Evaluation of Educational Achievement
ILO	International Labour Organization
IQ	Intelligence quotient
IQO	International quality observers
ISC	International Study Centre
ISCED	International Standard Classification of Education
NAECS-SDE	National Association of Early Childhood Specialists in State Departments of Education
NAEYC	National Association for the Education of Young Children
NCCSS	National Child Care Staffing Study
NEPS	National Educational Panel Study
NICHD	Eunice Kennedy Shriver National Institute of Child Health and Human Development
NICHD ECCRN	NICHD Early Child Care Research Network
NICHD SECCYD	NICHD Study of Early Child Care and Youth Development
NPM	National project manager
OECD	Organisation for Economic Co-operation and Development
OSS	Online Survey System
QEG	Questionnaire expert group
SOP	Survey Operations Procedures
SSTEW	Sustained Shared Thinking and Emotional Well-being
STEPP	Survey of Teachers in Pre-primary Education
TAG	Technical advisory group
TALIS	Teaching and Learning International Survey
UNESCO	United Nations Educational, Scientific and Cultural Organization
ZPD	Zone of proximal development

Introduction

Early childhood education and care (ECEC) is high on the policy agenda in many OECD countries, as a consolidated body of research shows that high-quality ECEC has a wide range of benefits for children, parents and society at large. For example, exposure to high-quality ECEC can lay the foundation skills for children's lifelong learning, tackle educational disadvantages, alleviate the consequences of child poverty, facilitate female labour force participation, promote better work-life balance for parents, and improve inter-generational social mobility (Guerin, 2014, OECD, 2018, UN Women, 2015). Many OECD countries have increased public spending on ECEC in recent years (OECD, 2014, OECD, 2017b, OECD, 2018). Countries making such investments, and others seeking to expand public resources devoted to ECEC, are therefore interested in understanding the array of potential impacts from their ECEC spending to better inform future decision making (OECD, 2018).

In many OECD countries, ECEC provision is complex and often fragmented. This is due to the diversity of services – formal and informal, as well as private and public - and challenges in data collection and policy co-ordination among different government ministries or agencies. While data are increasingly collected at the system level (e.g. on staff-child ratios and staff qualifications), there are still very little data available on what happens in the playgroup, playroom or classroom, and what the consequences are for children's early development. However, evidence consistently suggests that these proximal processes of children's everyday experiences, i.e. process quality, are the primary driver of children's development and learning in ECEC (OECD, 2018). There is also a lack of consistent descriptive data on the general work and working conditions faced by ECEC staff, including, for instance, the work climate, professional development opportunities, and other staff and centre characteristics.

The OECD has developed a long-term data development strategy and a suggested data collection roadmap to fill this gap (OECD, 2012b, OECD, 2013). The roadmap identified a significant need for better and new data on ECEC to help countries make well-informed policy choices – in particular staff-level data on process quality (OECD, 2018), learning and well-being environments (namely, the ECEC environment) and child development, well-being, and learning outcomes (also referred to as child outcomes). This roadmap also became the foundation for the OECD analytical framework for ECEC presented in Figure 1 below.

The OECD's analytical framework for ECEC encompasses these and other ECEC-related projects, and places children's development, well-being, and learning at the centre (including social and emotional skills, cognitive skills, dispositions, and physical development). The OECD framework emphasises how children's early development is influenced by their experiences in early learning settings, including the home and ECEC environments. It also highlights the role that policy plays in shaping these environments and refers to policy data available from ECEC policy reviews, OECD Education at a Glance, and the OECD Family Database for most, if not all, countries participating in the Starting Strong Teaching and Learning International Survey 2018 (TALIS Starting Strong Survey 2018).

Figure 1. OECD analytical framework for ECEC
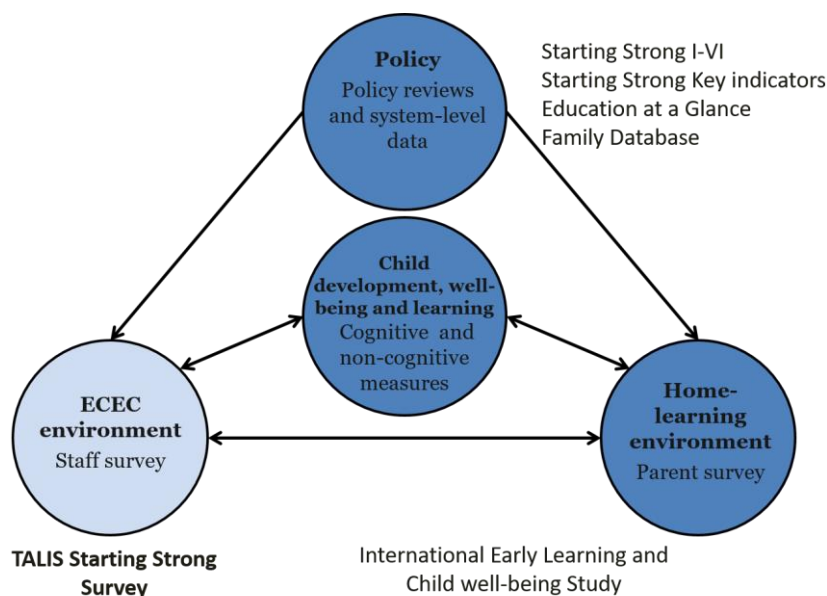
As part of its data development strategy, the OECD ECEC Network, which brings together international policy makers and researchers, and the OECD Secretariat engaged in iterative and thorough discussions regarding the methodological approach to develop quality indicators at the playgroup, playroom and classroom level. Researchers have made numerous attempts in past decades to measure process quality in ECEC by describing the nature of the environment providing the child's daily experiences. They have used a wide range of methods, including questionnaires, interviews, caregiver and parent ratings, case studies, informal observation and systematic observation. While only the systematic observation measures have so far achieved reliability and validity, they remain technically and financially challenging for many countries. In addition, the majority of available instruments overlook the ECEC staff perspective and the perspective on staff relationships with other staff, leaders, parents and the community (OECD, 2018). Therefore, the OECD ECEC Network and the OECD Secretariat agreed that an international survey that focussed on ECEC staff and centre leaders as a proxy for, and determinant of, the quality of learning and well-being environments and the organisation of ECEC would be a useful tool to start exploring and investigating process quality within feasible financial means, as well as providing comparisons at the international level.

A technical review informed the OECD's decision of whether to launch an international self-report survey (Bäumer, 2013). While acknowledging the merits of observational studies, the review highlighted that various indicators on which data could be collected in a self-report survey, such as professional development, working hours and schedule, were correlated with observed quality in other studies. The review also highlighted that observational measures may be less useful and overly costly in broader international surveys on overall quality that do not focus in-depth on detailed aspects of process quality (Bäumer, 2013). During discussions, the network also acknowledged the importance and policy relevance of the OECD TALIS project, which has had three cycles (2008, 2013 and 2018). The TALIS survey, conducted in many OECD and partner countries, uses teachers' self-reports for international comparison and has contributed to the international knowledge base on teachers, teacher beliefs, teaching practices and working conditions on the ground-important areas that have been demonstrated as contributing to a good learning and well-being environment.

As part of the OECD's ECEC data development strategy (OECD, 2013), and building on the experience of TALIS in primary and secondary education, the OECD is undertaking the TALIS Starting Strong Survey 2018, an international survey of ECEC staff and centre leaders. The survey aims to collect data on learning and well-being environments, in particular the work of ECEC staff and centre leaders with children in ECEC settings. It also aims to collect data on how staff are motivated to join the ECEC profession and factors affecting their career decisions, as well as how staff are developed for and within the profession. It is the first of its kind that aims to provide rich comparable data relevant for the delivery of quality ECEC services internationally. Further, through co-operation between the United Nations Educational, Scientific and Cultural Organization (UNESCO) and OECD, the conceptual framework and materials for the TALIS Starting Strong Survey were used and adapted for the development of the OECD-UNESCO joint initiative Survey of Teachers in Pre-Primary Education (STEPP), for which a field trial was implemented in low and middle-income countries in 2018. The initiative seeks to strengthen the contribution to the implementation of Sustainable Development Goal (SDG) Target 4.2 on access to quality ECEC services for all children and Means of Implementation 4.c on teachers.[1]

The population covered by the TALIS Starting Strong Survey 2018 encompasses all ISCED Level 0.2 staff and is as comparable as possible across participating countries.[2] All early childhood educators, pre-primary teachers, primary teachers, kindergarten teachers, preschool teachers and auxiliary staff taking part in pedagogical work within early education and care of ISCED Level 0.2, and their centre leaders/managers, are included. The TALIS Starting Strong Survey 2018 offers the opportunity to additionally or exclusively survey staff working with children under the age of 3 years (equivalent to ISCED Level 0.1 in many countries).

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[1] For more information on STEPP see: https://en.unesco.org/themes/ECCE/stepp.

[2] ISCED (International Standard Classification of Education) was designed by UNESCO 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. *International Standard Classification of Education: ISCED 1997* [Online]. UNESCO. Available: http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm. [Accessed 15 January 2019].. The most recent classification of educational levels references 2011 data and was published in 2012 (ISCED-2011) UNESCO 2012. International Standard Classification of Education: ISCED 2011, Montreal, Canada: Statistics, U. I. f.. ISCED 0.2 refers to pre-primary education and is typically designed for children from age 3 years to the start of primary education. ISCED 0.1 refers to early childhood educational development and has an educational context designed for children in the age range of 0 to 2 years. Annex A provides an overview of the ISCED 2011 classification.

To get closer to answering questions about what works in terms of learning gains, cost-effectiveness, and the quality of child outcomes, another data-collection strand focussing on children's early learning is also being developed as a separate study by the OECD (the International Early Learning and Child Well-being Study[3]). Given the lack of overlap in participating countries, datasets of this study cannot be linked to TALIS Starting Strong Survey data in this cycle, but conceptual alignment has been sought.

This first cycle of the TALIS Starting Strong Survey 2018 builds on the experience of TALIS. The TALIS 2018 Conceptual Framework (Ainley and Carstens, 2018) and questionnaires are also the starting point for the TALIS Starting Strong Survey 2018 Conceptual Framework and questionnaires.

As with TALIS, the purpose of the TALIS Starting Strong Survey 2018 Conceptual Framework is to provide an integrated theoretical and analytical underpinning to the study that articulates its research foci and links to existing knowledge and evidence and policy questions. The framework also identifies the methods used to guide the development of instruments and operations.

The TALIS Starting Strong Survey 2018 gathers information from ECEC staff and centre leaders on what research and the experience of ECEC staff suggest contribute to children's positive development and learning, including: staff and ECEC centre characteristics, working conditions and job satisfaction, practices, and learning and well-being environments. The Conceptual Framework recognises that positive child development, well-being and learning may be influenced by factors that cannot be examined through self-report surveys. The TALIS Starting Strong Survey 2018 also gathers valuable descriptive data on the general work and working conditions faced by ECEC staff and leaders.

The TALIS Starting Strong Survey 2018 Conceptual Framework is the result of an iterative process in which concepts formulated by the Questionnaire Expert Group (QEG) are discussed with relevant stakeholders, then revised and reformulated. The concepts developed by the QEG took into account the priorities from participating countries, theoretical background, key developments and discussions in the area, and the analytical potential of indicators. This process took place in parallel with the instrument development by the QEG. The QEG includes experts in ECEC, policy, and survey, as well as members by virtue of their role in the international research consortium, including the Chair of the TALIS QEG, the OECD Secretariat and the Technical Advisory Group (TAG).

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[3] More information on the OECD's International Early Learning and Child Well-Being Study is available here: www.oecd.org/edu/school/Early-Learning-Matters-Brochure.pdf.

The document is organised into two main sections:

- **Section I** discusses the purpose and goals of the TALIS Starting Strong Survey 2018. The high-level aim of the TALIS Starting Strong Survey 2018 is to inform policies (principles, rules, and guidelines) that could be adopted by governments and/or systems to support long-term goals and development. This implies a focus on factors that are amenable and malleable to change at the system, centre, and ECEC staff levels. Section I also provides an overview of the target population for the survey, as well as links to related OECD studies.

- **Section II** provides the theoretical foundation and empirical results of prior research to examine the themes concerned with the learning and well-being environments prioritised by participating countries. The questionnaires are designed to overlap thematically and at the item-level with the TALIS 2018 questionnaires to allow for some comparisons across these studies, especially between ECEC and primary education, while permitting unique additional indicators in areas identified as specifically relevant for the ECEC sector. The key themes include:

  o Themes mainly concerned with ECEC staff-child interaction (including process quality of staff-child interaction, and the monitoring and assessment of children's development, well-being and learning).

  o Themes mainly concerned with the ECEC centre characteristics (including structural quality characteristics, pedagogical and administrative leadership, climate, and stakeholder relations).

  o Themes mainly concerned with ECEC leader and staff characteristics (including background and initial preparation; professional development; well-being; professional beliefs about children's development, well-being and learning; and self-efficacy).

  o Themes that intersect with other themes (equity and diversity in the child group).

1. General purpose and policy relevance of the TALIS Starting Strong Survey 2018

The TALIS Starting Strong Survey 2018 is a large-scale international survey of ECEC staff and centre leaders in ECEC centres. It is complemented by other activities and studies in the larger OECD programme of work.

Objectives and purposes

The overall objective of the TALIS Starting Strong Survey 2018 is to provide robust international indicators and policy-relevant analysis on ECEC staff and centre leaders, their pedagogical and professional practices, and the learning and well-being environments in ECEC centres, in order to help countries review and develop policies that promote conditions for positive child development, well-being and learning. It aims to describe how characteristics of ECEC staff and centre leaders, their pedagogical and professional practices and learning and well-being environments vary within and across countries, and eventually over time. The learning and well-being environment and workforce indicators addressed by the survey are those believed to be related to children's positive development and learning outcomes, acknowledging that indicators will inevitably be influenced by cultural norms and values across countries.

The guiding principles of the TALIS Starting Strong Survey 2018 are aligned with TALIS and are as follows:

- **Policy relevance**: Clarity about key policy issues and a focus on the questions that are most relevant for participating countries are essential.
- **Value added**: International comparisons should be a significant source of the study's benefits.
- **Indicator oriented**: The results should yield information that can be used to develop indicators.
- **Validity, reliability, comparability and rigour**: Based on a rigorous review of the knowledge base, the survey should yield information that is valid, reliable, and comparable across participating countries.
- **Interpretability**: Participating countries should be able to interpret the results in a meaningful way.
- **Efficiency and cost-effectiveness**: The work should be carried out in a timely and cost-effective way.

The TALIS Starting Strong Survey 2018 will produce three types of product:

- **Indicators** that monitor ECEC systems at the levels of staff and centres (including those related to centre leaders).
- **Information** on characteristics of ECEC staff and centre leaders, their pedagogical practices with children, professional practices in other aspects of their work, and learning and well-being environments nationally and internationally.
- A reliable, comparative **database** that allows researchers worldwide to study a variety of basic and policy-oriented lines of inquiry at the national and international levels and over time.

Indicators for system monitoring

The TALIS 2018 Conceptual Framework (Ainley and Carstens, 2018) includes an important discussion on indicators for system monitoring in the school context, an adapted version of which is included here as it applies equally well to the ECEC context. The selection of TALIS Starting Strong Survey 2018 indicators was guided by a priority rating exercise and following discussions and deliberations by the TALIS Starting Strong Survey 2018 participating countries. The quality of the survey items (their reliability and validity) was then tested in the pilot and field trial of the study. The TALIS Starting Strong Survey 2018 describes ECEC systems with reliable and valid scales in order to understand the context and associations of ECEC staff and centre leaders, staff pedagogical and professional practices, and learning and well-being environments. In this way, the TALIS Starting Strong Survey 2018 provides a tool for policy makers and researchers to monitor and compare ECEC systems. The TALIS Starting Strong Survey 2018 provides indicators on ECEC centre characteristics, staff pedagogical approaches, staff characteristics, staff professional development, and centre leadership variables, among other elements. Most importantly, the TALIS Starting Strong Survey 2018 results will 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 ECEC and education systems.

One priority for countries is that the TALIS Starting Strong Survey 2018 should align with TALIS to ensure that some indicators can be compared across ECEC and primary education. This means striking a balance between maintaining existing TALIS questions; revising questions to adapt to the ECEC context, or improving/expanding the measurement of existing constructs; and introducing modified or new questions that address topics particularly relevant to the ECEC context.

The policy relevance of this system monitoring enterprise is based on the following:

- Using well-established research to define and operationalise the relevant constructs of interest. These constructs are based on the priorities and goals of the participating countries.
- Using an innovative methodology (situational judgment items) to provide an additional perspective on ECEC process quality.
- Examining and reporting factors that may be subject to control by policy and professional practice. These factors are considered malleable.
- Providing international benchmarks that allow policy makers to ascertain what they may learn about ECEC pedagogical and professional practices and learning and well-being environments from other countries participating in the TALIS Starting Strong Survey 2018.

Indicators serve to direct attention to facts or occurrences of interest. Indicators are descriptive, and should provide information about the unit of interest (e.g. the 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 ECEC systems, pedagogical and professional practices, and learning and well-being environments becomes even more useful when data from one system can be compared with data from other systems, or 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 ECEC staff and centre leader characteristics, staff pedagogical and professional practices, and learning and well-being environments, within and across ECEC systems. Therefore, the TALIS Starting Strong Survey 2018 instruments aim to cover the most important inputs and processes of pedagogical and professional practices, and learning and well-being environments, at the ECEC staff and centre levels. An important goal of a high-quality indicator is to provide information that can help policy makers set priorities and make evidence-based decisions. Statistical models that account for the inherent multilevel (system, ECEC centre, staff) structure of TALIS Starting Strong Survey data provide a useful way to understand and explain differences within and across ECEC centres and within and across countries.

Although analysis of the TALIS Starting Strong Survey 2018 data has the potential to make important contributions to the knowledge base for ECEC policy and practice, the same limitations that apply to TALIS must be considered. First, it is a cross-sectional rather than longitudinal study. 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 environments have on individual ECEC staff. These sorts of inference require a longitudinal study in which the same ECEC staff are followed over time to track changes in variables of interest.

In addition, because the survey does not collect data on child outcomes, the relationship between staff characteristics, process quality and children's development, well-being and learning cannot be judged based on the survey alone. To analyse these relationships, it would be necessary to link data about staff, their practices and interactions with individual

child outcomes. Such a link is not possible for the TALIS Starting Strong Survey 2018 and the first cycle of the International Early Learning and Child Well-being Study because there is no overlap in participating countries across the two studies. Although the Starting Strong Survey cannot provide empirical evidence on the effectiveness of ECEC, it can provide valuable descriptive information on ECEC staff-child interactions, ECEC centre characteristics and ECEC staff and leader characteristics in participating countries.

Finally, because it is a self-report survey and does not engage in direct observation by independent assessors of pedagogical and professional practices, inferences are also limited as staff responses may vary from what would be observed in practice. Moreover, cross-cultural variation may impact how participants in different countries respond to different questions. However, the innovation of using situational judgment questions to explore ECEC process quality provides an additional perspective on the validity of the self-reported data. Moreover, the survey method does provide information about issues (especially perceptions) that could not be obtained through other methods. Regarding the potential for social desirability responding using self-report surveys, the international research consortium has also consulted the TAG for their recommendation on addressing social desirability in the TALIS Starting Strong Survey 2018. The TAG conducted an analysis of social desirability on the field trial data. While there were large cross-cultural differences in responses, the correlations between responses corrected and uncorrected for social desirability were very high. The TAG concluded that social desirability was not of high enough priority to be further investigated in the main survey, and the scoring of extremity and modesty responding of scales may be an adequate approximation of social desirability.

Policy considerations

The development of the TALIS Starting Strong Survey 2018 Conceptual Framework has been guided by the document "Towards a Conceptual Framework for an International Survey on ECEC Staff", prepared by the OECD in the early phases of development of the TALIS Starting Strong Survey 2018 (Loizillon, 2016). This document was based on discussions with the OECD ECEC Network, which brings together international policy makers and researchers, as well as international organisations such as UNESCO and the European Commission, and the Extended ECEC Network, a sub-group of countries initially interested and eventually participating in the TALIS Starting Strong Survey, as well as consultations with external experts.

Three main policy issues were identified as central to examine during the first cycle of the TALIS Starting Strong Survey:

- **Ensuring the quality of learning and well-being environments.** For instance, what are ECEC staff pedagogical practices? How do they support children's development? What are their beliefs on effective pedagogies? Using an innovative methodology (situational judgment items) to provide an additional perspective on ECEC process quality.
- **Motivating, attracting and retaining staff to the profession.** Such as, how motivated are ECEC staff? How much turnover is there among ECEC staff?
- **Developing staff for and within the profession**. For instance, how are ECEC staff trained? What are the barriers and facilitators of staff professional development?

It was also determined that **staff and centre-level contextual information** cutting across these different policy issues was needed to properly interpret the results and to better address questions such as:

- Who are the ECEC staff in participating countries/sub-national territories? How do their personal characteristics compare?
- What settings do they work in? How do these settings and working environments compare?

Priority themes for inclusion

The priority rating exercise for the TALIS Starting Strong Survey 2018 was based on the preliminary framework document prepared by the OECD Secretariat, discussions at the meetings of the OECD Network on ECEC, country consultations, and written submissions of country comments. It was carried out in May and June 2015 with the voluntary participation of nine countries interested in the survey that represented a wide variety of geographical and cultural backgrounds.[4] The goal of the priority rating exercise was to obtain indications of preferences from countries regarding: 1) the questionnaire structure (i.e. whether the questionnaires should cover a wide range of topics (breadth), or focus on a smaller number of topics covered in more detail (depth); and 2) themes and indicators that should be considered with priority for inclusion in the questionnaires. This priority rating exercise served to guide the development of the Conceptual Framework and the development of the ECEC staff and centre leader questionnaires. More information about the method used to gather countries' priorities and the main results from the exercise can be found in Annex B.

Regarding the questionnaire structure, countries expressed a clear preference for examining at least six themes rather than fewer themes examined in more depth.

Regarding themes and indicators, countries regarded some themes as very high priority (e.g. staff education and training, learning and well-being environments, staff pedagogical practices and beliefs), while other themes were considered less important (e.g. innovative practices and evaluation, attracting good students into ECEC study programmes/the ECEC profession).

Although this exercise was useful to provide guidance for the development of the framework and questionnaires, it should be noted that there was significant between-country variation in the rankings, and the overall highest rated themes matched the priorities of some countries more closely than others. Moreover, not all countries implementing the TALIS Starting Strong Survey 2018 participated in this priority rating exercise as it took place before countries committed to taking part in the survey.

Based in part on results from the priority rating exercise, and following further discussions with stakeholders, it was decided that the TALIS Starting Strong Survey 2018 should include at least six themes that, in combination, would inform all three policy issues identified above. The final list of the 12 themes and corresponding indicators is listed in Section II.

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[4] Countries that provided ratings were: Germany, Israel, Japan, Kazakhstan, Korea, Luxembourg, Norway, Turkey, and the United States.

In addition to the above themes, discussions with the ECEC Network and the Extended ECEC Network revealed the importance of including issues surrounding equity and diversity among children attending ECEC settings. This theme was considered to be encapsulated in the substance of each of the themes above and emerged as a theme of high contemporary policy importance.

Defining the TALIS Starting Strong Survey 2018 target populations

The TALIS Starting Strong Survey investigated two target populations:

- Staff and centre leaders working in centres belonging to ISCED Level 0.2.
- Staff and centre leaders working in centres providing services for children under the age of 3.

Although the core focus of the TALIS Starting Strong Survey 2018 was ISCED Level 0.2, countries could choose to additionally or exclusively implement a second target population of registered provision for children under the age of 3 years. The Conceptual Framework considers that the themes covered by the survey are to be held constant across these populations' levels, while allowing for minor adaptations to tailor questionnaire items to the centres with younger children, where appropriate.

Centres were defined as institutional (officially registered) settings that provided ECEC programmes, i.e. formal education and care for young children from birth up to entry into primary education, also defined as ISCED Level 0. In order to be classified as a "centre", settings had to provide educational activities for at least 2 hours per day and 100 days a year.

ECEC centre staff comprised the centre leaders or managers and all persons working regularly in a pedagogical way with children within registered early education and care settings. ECEC centre staff members were defined as persons who, as part of their regular duties in the target centre, provided learning opportunities or care. Centre leaders were defined as persons with most responsibility for the administrative, managerial and pedagogical leadership in their ECEC centre. In smaller centres, the centre leaders might also have spent part of their time working with children.

Further detail on the target population and design of the TALIS Starting Strong Survey 2018 is available in Annex C.

Links to related OECD studies

Links to other projects on ECEC and early childhood development

The OECD has been reviewing policies and practices in ECEC for about 20 years, which resulted in the Starting Strong series volumes I through V (2001-2017). These reports offer an international perspective of ECEC systems, discuss different policy approaches, and provide policy orientations that can help promote equitable and affordable access to high-quality early childhood education and care. The latest three volumes focus on quality, monitoring and transitions from ECEC to primary school. They have been influential in the development of the TALIS Starting Strong Survey and have informed this conceptual framework. The analysis and reporting of the survey data will be embedded in the policy insights from the Starting Strong series, drawing on contextual information and concrete examples, as applicable.

The TALIS Starting Strong Survey reporting will be particularly informed by the project Policy Review: Quality beyond Regulations in ECEC. The OECD will ensure synergies between the survey and this policy review as the two projects have been developed with a careful alignment of goals, resources, conceptual and analytical coherence, and data-collection strategies. The review covers services for ages 0-6 and focusses on ECEC process quality, aiming to inform policy decisions to improve ECEC quality through different dimensions that enhance child development, well-being and learning.

In 2019, the project will deliver a policy review framework and conduct a country survey on countries' policies and practices related to multi-dimensional quality in ECEC (e.g. quality standards, governance, funding, curriculum, workforce, family and community engagement, data and monitoring). It will take stock of which process indicators are being developed, monitored, or targeted in countries providing data. Drawing on conceptual work conducted in 2017-2018, and countries' survey responses, a basic multi-dimensional matrix/framework for quality in ECEC will be developed in 2020, and international findings will be synthesised in Starting Strong VI.

The International Early Learning and Child Well-being Study, which is also being administered in 2018, involves children, their parents or primary caregivers and staff in ECEC centres and/or schools in participating countries. It assesses children at approximately age 5, identifying key factors that drive or hinder the development of early learning. While these data are complementary to the TALIS Starting Strong Survey results, as highlighted above, linkages are limited by the absence of countries implementing both studies.

Links to TALIS 2018

The TALIS Starting Strong Survey 2018 was developed following the TALIS model. It used the same guiding principles and sought to maximise alignments and synergies with TALIS. These alignments and synergies have been achieved at the level of governance and implementation, for example, governing board meetings for both studies are taking place back-to-back in the same location, some countries have one national centre for both projects, and there is overlap in the expert membership of the QEGs and TAGs for both studies. There are also commonalities in policy issues addressed in both studies (see Table 1).

Table 1. Policy issues in the TALIS Starting Strong Survey 2018 and TALIS 2018

TALIS Starting Strong Survey 2018	TALIS 2018
1. Ensuring quality of learning and well-being environments	1. Quality teachers and teaching
	5. School policies and effectiveness
2. Motivating, attracting and retaining staff to the profession	2. Attracting teachers to the profession
	4. Retaining teachers in the profession
3. Developing staff for and within the profession	3. Developing teachers within the profession

There is also some overlap in the themes and indicators for both surveys. This overlap provides the added analytical value to compare indicators across ISCED levels for countries with data on multiple ISCED levels. In these cases, the overlap in indicators allows for the examination of, for example, differences and similarities in the characteristics of the workforce or in the characteristics of the learning and well-being environments between ISCED 0.2 and ISCED 1 (primary education) settings. At the outset, it was estimated that there would be approximately a 70% overlap between the indicators used in TALIS 2018

and the TALIS Starting Strong Survey 2018, leaving approximately 30% of the questionnaires for ECEC-specific indicators in the TALIS Starting Strong Survey 2018. This overlap estimate was revised downwards during the development of the questionnaires because ensuring the relevance of TALIS 2018 questions to the ECEC sector required greater than expected adaptations at the item level. At the pilot stage (October 2016), the item-level overlap between the TALIS Starting Strong Survey Staff Questionnaire and the TALIS Teacher Questionnaire was approximately 40%, while the overlap between the TALIS Starting Strong Survey Leader Questionnaire and the TALIS Principal Questionnaire was approximately 55%. At the field trial stage (May-June 2017), the overlap between the TALIS Starting Strong Survey Staff Questionnaire and the TALIS Teacher Questionnaire was approximately 34%, while the overlap between the TALIS Starting Strong Survey Leader Questionnaire and the TALIS Principal Questionnaire was approximately 46%. For the main survey, the overlap between the TALIS Starting Strong Survey Staff Questionnaire and the TALIS Teacher Questionnaire was approximately 29%, while the overlap between the TALIS Starting Strong Survey Leader Questionnaire and the TALIS Principal Questionnaire was approximately 48%. The thematic areas of at least partial overlap include: pedagogical and administrative leadership, climate, stakeholder relations, staff and leader background and initial preparation, professional development, well-being, self-efficacy, and equity and diversity in the child group. More detailed information on overlapping items and scales is provided in Annex D.

2. Knowledge relating to the themes and main indicators of the TALIS Starting Strong Survey 2018

Introduction: A Conceptual Framework of the TALIS Starting Strong Survey 2018 themes

Society and policy makers expect ECEC settings to provide high-quality environments for development, well-being and learning to prepare children for participation in society and later success in life (OECD, 2015b, Vegas et al., 2013, UNESCO, 2013). In light of global social and economic changes (e.g. increasing migration movements, increasing impact of computer technology, growing demands for the development of innovative skills, women's emancipation, and increasing maternal employment), the provision of high-quality ECEC to heterogeneous societies, in terms of socio-cultural and migration backgrounds and diverse living styles, becomes an increasingly challenging and complex task (Lang-Wojtasik, 2008). To address the policy issues related to ECEC provision, which are outlined in Section I, the TALIS Starting Strong Survey 2018 uses an internationally comparative approach to provide descriptive information on ECEC systems and their staff and leadership; focussing particularly on the quality of working conditions in institutional (formally registered) ECEC centres,[5] and on characteristics of ECEC environments for children's development, well-being and learning. To provide an overall conceptual and analytical framework, the research consortium developed the TALIS Starting Strong Survey Conceptual Model, which expands on the OECD analytical framework for ECEC presented in Section I (Figure 1).

This section describes the Conceptual Framework of the TALIS Starting Strong Survey 2018 and presents its theoretically driven concept of quality that will be used for the purpose of this study. It provides an overview of factors that contribute to the main policy issues, namely: ensuring the quality of learning and well-being environments (Policy Issue 1); motivating, attracting and retaining staff to the profession (Policy Issue 2); and developing staff for and within the profession (Policy Issue 3). These factors are explored in more detailed in the respective thematic parts of Section II.

Developing the TALIS Starting Strong Survey Conceptual Model to describe the ECEC environment for child development, well-being and learning

The research consortium developed a conceptual model to describe the ECEC system, staff and leader characteristics as well as the quality of the ECEC learning and well-being environments. This is schematically summarised in the "TALIS Starting Strong Survey Conceptual Model" (see Figure 2 below), which describes in greater detail the ECEC environment for the development, well-being and learning of children presented in the OECD analytical framework for ECEC (see Figure 1 in Section I). The TALIS Starting Strong Survey Conceptual Model was developed following models from educational effectiveness research, which draw upon organisational theories (Cheng, 1993, Cheng, 1996, Scheerens and Bosker, 1997). In particular, the research consortium adapted the "Model of Learning and Well-Being in ECEC Centres" (Stancel-Piątak and Hencke, n.d.)*,* which was initially based on Huitt's "Transactional Model of the Teaching/Learning

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[5] For a definition of the study's target population, refer to Section I and Annex C.

Process"[6] (Huitt, 2003, Huitt et al., 2009). The aim of the TALIS Starting Strong Survey Conceptual Model is to provide a simplified schematic overview of the structure of the institutional (formally registered) ECEC system, acknowledging that it is embedded into a wider context, including the home environment, as well as the regional/national policy context. After establishing the overall framework of the TALIS Starting Strong Survey (with respective levels and areas), factors specifically related to ECEC provision were incorporated into the model. These factors are described further below.

To acknowledge the structural and organisational heterogeneity of ECEC provision in participating countries, the TALIS Starting Strong Survey Conceptual Model is conceptualised in a broad and comprehensive perspective reflecting major areas of an ECEC centre environment. Based on consultations and prior data collection (OECD Starting Strong Reports, Education Policy Outlook),[7] it is assumed that the overall organisational structure of institutional (formally registered) ECEC settings, with the exception of family day-care settings,[8] can be characterised as being substantially similar to the organisational structure of the school system in participating countries. The aim to conceptually embrace diverse institutional (formally registered) settings required a very broad and general approach while conceptualising the model. Thus, the model focusses on the joint characteristics of diverse settings, such as child-staff interaction, administrative characteristics of the setting, or staff characteristics. A further shared characteristic of family day-care settings, and other formally registered settings, is that they are subject to policy regulations, which is considered in the OECD overall analytical framework (Figure 1).[9]

Due to the different developmental and learning needs of young children, there are major differences between the ECEC system and the school system (e.g. size of local settings, age of the children, staff education, governance and accountability structures). Acknowledging this fact, the TALIS Starting Strong Survey Conceptual Model does not aim to provide a basis for a direct comparison of quality factors between the school system and the ECEC system. However, as both systems share common characteristics regarding overall structure and types of processes, the models developed within educational effectiveness research can be adapted into a conceptual framework for the TALIS Starting Strong Survey 2018. These structural similarities are valid to a varying extent for all types of formally registered ECEC settings, with family day-care settings showing the greatest differences due to the lower number of staff involved and the less formalised within-setting structure. In many countries (and in all TALIS Starting Strong Survey 2018 participating countries), the school and the institutional ECEC system consist of public or private organised local entities (local schools or ECEC centres), where children are provided with

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[6] Huitt's model was chosen due to its focus on learning processes in the school environment focussing on teacher-student interaction. The model was transposed for the IEA Early Childhood Education Study to describe institutional (officially registered) ECEC systems.

[7] The OECD Starting Strong Reports are available here: http://www.oecd.org/education/school. The Education Policy Outlook is available here: http://www.oecd.org/edu/profiles.htm.

[8] Family day-care settings refer to licensed home-based ECEC settings OECD 2018. Engaging Young Children: Lessons from Research about Quality in Early Childhood Education and Care, *Starting Strong*, Paris, France: Publishing, O., 10.1787/9789264085145-en.

[9] For analysis of education policies refer to the Education Policy Outlook OECD 2016a. Education Policy Outlook, Paris, France.; for a description of ECEC systems refer to Anders, Y. 2015. Literature review on pedagogy for a review of pedagogy in early childhood education and care (ECEC) in England (United Kingdom), Paris, France.; for a description of educational systems refer to Mullis, I. V., Martin, M. O., Minnich, C. A., Drucker, K. T. & Ragan, M. A. 2012. PIRLS 2011 Encyclopedia: Education Policy and Curriculum in Reading. Volume 1: AK, *International Association for the Evaluation of Educational Achievement*, Boston, MA: Centre, T. P. I. S..

formal education in school and preschool settings, and care in ECEC centres (together with formal education in some cases). Except in very small ECEC settings (such as formally registered family day-care settings), local entities have similar personnel structures to a school setting, with a leader responsible for the facility management and pedagogical leadership, and teachers or other staff responsible for the daily implementation of education and childcare. In smaller settings, the number of staff members might be lower, particularly in family day-care settings where the same person may lead the setting and provide children with care and education. Even though the same person is responsible for centre leadership and ECEC provision, a conceptual and analytical differentiation can be made between characteristics of the whole centre or setting and characteristics of direct staff-child and child-child interactions, as reflected in the TALIS Starting Strong Survey Conceptual Model (Figure 2). The varying number of staff and distribution of responsibilities have been considered during the data collection process,[10] as well as during data analysis.

An additional similarity across participating countries between the ECEC system and the school system in the TALIS Starting Strong Survey 2018 is that most institutional (officially registered) public local entities are embedded into a larger system overseen by governmental organisations, such as the ministry of education. Institutional (officially registered) private local entities are also often embedded into a larger organisation. ECEC provision for children under the age of 3 and family day-care settings may be embedded into the public system to which they are accountable, although this is not always the case.

Models based on organisational theories provide a basis for defining what kinds of processes take place in an organisation, both within and between the different levels. In the case of institutional (officially registered) ECEC centres, processes pertain to, for example, communication, implementation of strategies and development. Processes among staff, and between the staff and the leader, do not exist in one-person settings. However, processes taking place in the context of staff/leader-child and child-child interaction can be described in all kinds of ECEC centres, regardless of their size.

Underlying concepts in the TALIS Starting Strong Survey Conceptual Model

The broad concept describing the ECEC system is based on the extended input-process-output model. To describe child development the framework refers to the constructivist approaches to child development, well-being and learning. The fundamental assumption of the early input-process-output models is that child development, well-being and learning are the products of inputs and processes (Scheerens and Bosker, 1997). According to this approach, children's developmental stage or level of abilities and skills at the end of early childhood education are defined as the output or short-term outcomes of the early childhood education system. While the assumed relationship between the input, process and output was unidirectional in the early input-process-output models, recent extensions assume reciprocal relationships between these factors (Cheng, 1993, Cheng, 1996). Whereas staff or teacher interaction with a child is at the core of the input-process-output paradigm, processes at other levels (i.e. at the centre level) can also be specified, together with input, structure and personnel characteristics.

In ECEC, the core processes enhancing child development, well-being and learning are related to staff-child or child-child interactions, and encompass mainly pedagogical

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[10] Institutional (officially registered) family day-care settings are part of the TALIS Starting Strong Survey sample and are assessed via a combined questionnaire with questions concerning the leadership and pedagogical processes. In settings where two different staff members are responsible for centre leadership and pedagogical leadership, the centre leader questionnaire was administered to both responsible persons.

practices, play, and communication. The specific focus in ECEC research on these core processes is supported by empirical findings[11] revealing the potential of high-quality staff-child interactions to enhance children cognitive, social and emotional development (OECD, 2018, Burchinal et al., 2011, NICHD Early Child Care Research Network, 2006, Siraj-Blatchford et al., 2003).

Findings also suggest that high-quality staff-child interactions and learning environments are eminently important for the development of disadvantaged children (Leseman et al., 2017, Hilbert and Eis, 2014). In the long term, ECEC has the potential to improve the life chances of children from disadvantaged families (e.g. Barnett, 2011, Camilli et al., 2010, Dearing et al., 2009, Melhuish, 2011, Melhuish et al., 2015, Zachrisson and Dearing, 2015). These findings underpinned the development of the TALIS Starting Strong Survey to explore staff practices relevant for children's development. Capturing these practices and other dimensions of the ECEC environment is fundamental for the design of policies and practices that will favour children's well-being, well-being and learning, as reflected in the OECD Analytical Framework (Figure 1).

According to the input-process-output paradigm, the "input" consists of all factors and conditions that can potentially be inputted into a system (by policy action, by self-selection or by any other influence). Within this perspective, material things can be part of the input, as well as staff or children who enter the system with specific characteristics and potential (education, attitudes, developmental conditions, prior experiences, etc.). In this sense, staff characteristics closely related to interactions, such as self-efficacy or beliefs, are considered part of the input to the ECEC system. Characteristics of the centre leader and staff characteristics (background, initial preparation, professional development and well-being) and characteristics of the ECEC centre itself (structural quality characteristics, pedagogical and administrative leadership, and working conditions) are also defined as part of the input (Pianta et al., 2009, Pianta et al., 2005).

Besides the core processes (related to staff-child or child-child interactions), other processes take place in ECEC centres that are crucial for a high-quality environment for development, well-being and learning (Siraj et al., 2015). Important processes related to climate, for example, encompass factors such as communication and co-operation between the leader and the staff. The role of the specific context in which an organisation is placed has been stressed, as well as the fact that processes and outputs can also influence the input within an organisation (Cheng, 1996). Both aspects are considered in the TALIS Starting Strong Survey. The reciprocal relationship of ECEC factors is reflected by the assumption that the factors that are part of the input, and which influence the process, can also be influenced by the processes or even by the output.[12]

To provide a theoretical foundation for the description of the processes related to child development, well-being and learning, the TALIS Starting Strong Survey 2018 draws upon constructivist approaches. Accordingly, early child development is described as an interaction between the individual and its specific socio-cultural environment, including other individuals (Bandura, 1976, Rogoff, 1990). From this perspective, child development, well-being and learning is perceived as being related to a wide range of

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[11] For more detailed overview please refer to Ch.2.3 of this framework.

[12] For instance, unsatisfactory child developmental, learning or well-being outcomes might influence the input, resulting, for example, in a decision to engage an expert. If the engaged expert further decides to use a specific material or facilities to enhance developmental processes, the centre leader might decide to buy the material. This example illustrates how the process can have an impact on the input.

different areas of child personality, such as physical, social-emotional, and cognitive domains (Bandura, 1986, Textor, 1999), and to various characteristics of the learning and well-being environment. Drawing on this holistic perspective, the concept of ECEC quality in the TALIS Starting Strong Survey 2018 is comprehensive and encompasses a variety of factors functioning at different levels of an ECEC centre, which are assumed to influence various areas of a child's development, well-being and learning. These assumptions were derived based on theoretical considerations and on prior findings from empirical international studies (see section on "TALIS Starting Strong Survey 2018 themes and indicators" below). While child development, well-being and learning are not being assessed directly, this framework and the instruments reflect the basic premises of these approaches.

Description of the TALIS Starting Strong Survey Conceptual Model

The TALIS Starting Strong Survey Conceptual Model (Figure 2) describes learning processes as being embedded into the institutional and social context, including a wide range of different factors and characteristics of the ECEC environment. It differentiates conceptually and analytically between staff-child interaction, ECEC centre characteristics, and staff and leader characteristics. Factors related to the direct interaction between ECEC staff and children regard the process quality of the interaction, as well as monitoring child development, well-being and learning. The model further contains centre characteristics, described by the structural quality characteristics of the environment, pedagogical and administrative leadership of the ECEC centre; climate; and stakeholder relations. Finally, leader and staff background characteristics include background and initial preparation, professional development, well-being, beliefs, and self-efficacy (OECD, n.d.). The Conceptual Model highlights how the TALIS Starting Strong Survey intends to capture the dimensions of the ECEC environment that are key for the development of children, which is an important pillar of the overarching OECD Analytical Framework (Figure 1).

Figure 2. TALIS Starting Strong Survey Conceptual Model of ECEC Environment for Children's Development, Well-Being and Learning
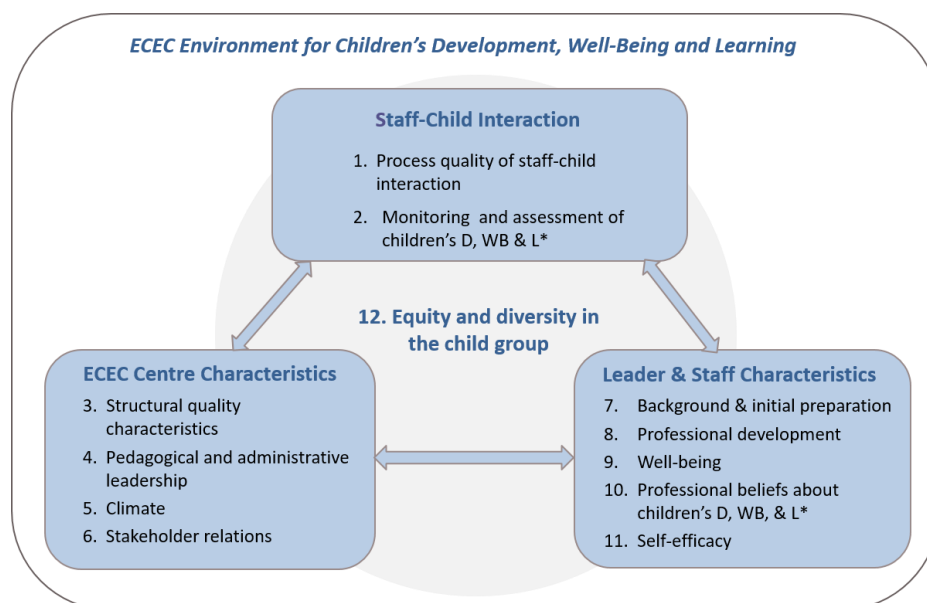
* *Note*: In the figure "D, WB & L" refer to "development, well-being and learning".

As visualised by the double-headed arrows in Figure 2, it is assumed that the factors at different levels influence each other. Whereas the focus in the TALIS Starting Strong Survey is on the process quality of staff-child interaction, the assumption is that this interaction is influenced by staff and leader characteristics and the characteristics of the ECEC centre. However, it is also hypothesised that the staff, leader and structural characteristics are also influenced by factors closely related to staff-child interaction. Further, other processes taking place in ECEC centres are also hypothesised to be directly or indirectly related to child development, well-being and learning, in addition to staff-child interactions. Such factors may include the communication and collaboration among staff within ECEC centres,[13] external co-operation,[14] or ECEC centre climate. These assumptions were derived based on the input-process-output paradigm and its recent developments described above.

Since the TALIS Starting Strong Survey Conceptual Model is embedded into the OECD's overarching analytical framework, it additionally considers the home learning environment of children, as well as the regional ECEC policy and socio-cultural context (as summarised in Section I and Figure 1). In the TALIS Starting Strong Survey 2018, the family background of children is assessed through information from staff and centre leaders on the group composition of the ECEC settings.[15] Furthermore, considering that well-suited ECEC provision might help bridging the gap between disadvantaged and advantaged children, the TALIS Starting Strong Survey 2018 provides information to evaluate whether

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[13] Communication and collaboration are explored within the theme "Process quality of staff-child interaction" in TALIS Starting Strong Survey 2018.

[14] External co-operation is explored within the theme "Stakeholder relations" in TALIS Starting Strong Survey 2018.

[15] The assessment of the family background considers various characteristics, such as socio-economic status, home language environment, refugee status. Although these variables are not a comprehensive list of the factors that are part of the home learning environment (HLE), some of these factors may be included in future cycles of the TALIS Starting Strong Survey.

the ECEC provision is well-suited to the needs of children from diverse backgrounds (Hilbert and Eis, 2014). The survey also collects information on the regional area in which the ECEC centre is located (urban vs. rural). Furthermore, interpretation of findings from the study considers country-specific socio-cultural and policy contexts as the analysis is presented at the country level. Three sources of information are used to evaluate the quality of ECEC centres in relation to its specific location and social structure: 1) staff and leader reports on child composition in their ECEC centre; 2) staff and leader reports on the area in which the ECEC centre is located; and 3) the country-specific context. Child development, as well as the family background, including factors describing the home learning environment (HLE), are separately assessed as part of the OECD's International Early Learning and Child Well-being Study (OECD, n.d).[16]

As a cross-sectional study, the TALIS Starting Strong Survey 2018 describes empirically the current status quo of the structural and personal characteristics of ECEC centres, as well as the processes, while linking it to the socio-demographic composition of children in the centres and the specific context.[17]

Adaptability to the environment as an overarching quality dimension

Acknowledging the diversity of the ECEC system across countries, the TALIS Starting Strong Survey 2018 refers to quality as a multi-faceted and multi-dimensional construct, which assumes that multiple factors and processes interact with one another at different levels of the system (individual, institutional and regional) (OECD, 2016b, Pianta et al., 2005). Instead of providing a detailed, multi-dimensional, and comprehensive definition of ECEC quality (Ditton, 2009), the quality of the ECEC system is described in the TALIS Starting Strong Survey 2018 by a major overarching perspective: the capacity to adapt to the local environment while achieving multiple and often competing goals (Cheng, 1993). This definition allows quality to be described, while also taking into consideration the cultural and local diversity of an ECEC system. In this perspective, high-quality settings are expected to have more capacity to effectively deal with conflicting pressures and imbalances than low-quality settings. These conflicting pressures and imbalances result from limited resources, multiple constituencies (e.g. parents, ministries, and stakeholders), environmental constraints (e.g. structure of the system, geographical location of the setting, availability of potential partners), and competing goals (OECD, n.d.). In the ECEC system, the interests of working parents for full-time provision could be perceived as being in competition with high-quality provision. As high-quality ECEC centres are more responsive to these circumstances, they are assumed to meet the needs of their children and the expectations of strategic constituencies at different levels of the institution (ministries, stakeholders, parents, etc.), and thus to more effectively contribute to children's development, well-being and learning (Cheng, 1996, Melhuish, 2004). Therefore, it is expected that high-quality ECEC provision better matches the needs of children achieving competing goals than low-quality ECEC provision. It is assumed that this matching ability enables high-quality provision to reach each individual child and leads to greater future child development and learning (Melhuish et al., 2015). The study consortium considers

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[16] In-depth information on the family background was collected within the OECD International Early Learning and Child Well-being Study OECD. n.d. *International Early Learning and Child Well-being Study* [Online]. Paris, France. Available: http://www.oecd.org/education/school/international-early-learning-and-child-well-being-study.htm [Accessed Accessed on 18th December 2018]..

[17] Process information is collected via questionnaires together with information on structural and personnel characteristics. The research consortium is aware of the limitations of self-reports on processes, in particular concerning staff-child and child-child interaction (cf. discussion in the Introduction and Section I).

these approaches as suitable as it allows for adaptation of the specific quality factors to properly mirror the heterogeneous ECEC system without imposing the same view on quality on all types of setting.

In line with this comprehensive approach, the TALIS Starting Strong Survey 2018 includes multiple dimensions assumed to indicate high-quality ECEC provision. The survey focusses on the characteristics of ECEC settings considered significant by societies and policy makers, as well as the research perspective on high-quality pedagogical activities, well-being and successful learning (Anders et al., 2012, Pianta et al., 2005, Pianta et al., 2009, Siraj et al., 2015, Tietze et al., 1998, Tietze et al., 2005, Hilbert and Eis, 2014, Leseman et al., 2017). It particularly focuses on aspects supported by research findings as being significant for the development, well-being and learning of children from diverse family and cultural backgrounds (OECD, 2018, Burchinal et al., 2011, NICHD Early Child Care Research Network, 2006, Siraj-Blatchford et al., 2003, Hilbert and Eis, 2014, Leseman et al., 2017). To capture the diversity of factors in different ECEC systems, the survey collects data on a wide range of variables in a standardised format to ensure comparability. Using this approach, the TALIS Starting Strong Survey 2018 captures the cross-cultural diversity across ECEC systems. Moreover, the study provides countries with the opportunity to compare themselves with other ECEC systems and to focus on the characteristics most interesting for their own ECEC system. The cross-country analysis allows countries to identify other countries facing similar challenges and to learn from other policy approaches. It is the intention of the study to draw a picture of the different ECEC environments and practices at ECEC centres in all the participating countries, rather than evaluating the extent to which ECEC centres are effective in terms of children's development, well-being and learning measured through direct assessment.

Empirical evidence on the impact of structural and process quality on children's cognitive development, well-being and learning in ECEC settings is mixed, particularly regarding the long-term perspective (Anders et al., 2012, Tietze et al., 1999, Tietze et al., 2005, NICHD Early Child Care Research Network, 2003).[18],[19] In general, the findings show that the features of process or structural factors more distant to learning processes (i.e. distal factors,[20] such as communication between staff and leader; full vs. part-day childcare) are at least partially mediated by process or structural factors directly linked to learning and developmental processes (i.e. proximal factors, such as staff-child interaction or beliefs of ECEC staff). Thus, it is assumed that it is the interaction of proximal and distal factors that influences child development, rather than their isolated effects (OECD, 2018, Pianta et al., 2009, Pianta et al., 2005). This is reflected in the focus on the ECEC environment as a whole in the Survey's Conceptual Model (Figure 2) and OECD Analytical Framework (Figure 1). In line with recent findings (Tietze et al., 2013, Tietze et al., 2005, Melhuish et al., 2015, NAEYC, 1991, World Health Organization, 1990), the TALIS Starting Strong Survey 2018 considers a wide range of quality dimensions in ECEC settings, including factors proximal to learning processes (e.g. process quality of staff-child interaction), as well as more distal factors (e.g. structural quality characteristics) that are expected to contribute to ensuring the quality of learning and well-being environments, whether

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[18] Longitudinal NICHD Study of Early Child Care and Youth Development (SECCYD).

[19] European Child Care and Education (ECCE) Study (Germany, Austria, Portugal, and Spain) (Tietze, W., Hundertmark-Mayser, J. & Rossbach, H. 1999.)

[20] For a more general definition of distal and proximal factors see Seidel, T. & Shavelson, R. J. (2007).

directly or indirectly (Table 2).[21] These factors considered as distal to learning processes are assumed to influence the quality of the pedagogical (inter-)action with children in a dynamic reciprocal process.

Table 2. Overview of themes and indicators included in the TALIS Staring Strong Survey 2018

Theme	Indicator
Staff-child interaction	
1. Process quality of staff-child interaction	Beliefs about enhancing the development of children's abilities and skills
	Engagement in collaborative professional practices
	Facilitating numeracy learning
	Facilitating play and child initiated activities
	Facilitating pro-social behaviour
	Language stimulation and support for literacy learning
	Staff emotional support for children
	Content of professional development and need for further development regarding process quality of staff-child interaction
	Pedagogical practices with second-language learners
	Self-efficacy regarding process quality of staff-child interaction
	Time spent on process quality
2. Monitoring children's development, well-being and learning	Content of pre-service education regarding assessment and monitoring
	Content of professional development and need for further development regarding assessment and monitoring
	Self-efficacy regarding the assessment and monitoring of children
	Time spent on the assessment and monitoring of children
	Staff engagement in collaborative professional practices related to the assessment and monitoring of children
ECEC centre characteristics	
3. Structural quality characteristics	Centre total enrolment and capacity
	Composition of children in the target group*
	Composition and role of staff in the target group*
	Centre staff human resources
	Shortage of resources including staff, ICT, material and physical space
	Staff attrition and turnover
	Centre funding and budget constraints
	Centre location and environment of the neighbourhood
4. Pedagogical and administrative leadership	Appraisal and feedback
	Beliefs about leader and pedagogical leadership
	Budget constraints
	Centre evaluation
	Centre staff resources
	Distributed leadership
	Distribution of tasks
	Pedagogical leadership
	Regulation constraints
	Resources for professional development
	Staff shortages
	Time spent on pedagogical and administrative leadership
5. Climate	Climate for staff learning
	Distributed leadership

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[21] In agreement with countries, health and security of the staff-child interaction was not considered in TALIS Starting Strong Survey 2018.

	Number of working hours
	Shared culture
	Staff engagement in centre
	Time spent on tasks related to upkeep of the ECEC centre (e.g. cleaning)
	Sources of work stress
	Staff beliefs about spending priorities
6. Stakeholder relations	Parent or guardian engagement
	Relationships with other stakeholders (e.g. parents or guardians, social services, schools, community centres)
	Outreach to other stakeholders (e.g. parents or guardians, social services, community centres)
	Transition to other education levels or primary school
Leader and staff characteristics	
7. Background and initial preparation	Age
	Content of pre-service education programme
	Characteristics of education and initial preparation programme
	Qualifications gained from education and initial preparation programme
	Educational attainment
	Employment status
	Gender
	Place of birth background
	Work experience
8. Professional development	Type of induction activity
	Participation in professional development activities
	Type and content of professional development
	Incentives and resources to participate in professional development
	Barriers to professional development
	Staff needs for further professional development
	Staff beliefs about spending priorities
9. Well-being	Career aspirations
	Satisfaction with career
	Satisfaction with profession
	Perception of the value of the profession
	Satisfaction with autonomy, ECEC centre, work environment and working conditions
	Sources of work stress
10. Professional beliefs about children's development, well-being and learning	Beliefs about enhancing the development of children's abilities and skills
	Staff beliefs about spending priorities
11. Self-efficacy	Self-efficacy relating to equity and diversity practices
	Self-efficacy regarding process quality of staff-child interaction
	Self-efficacy regarding the assessment and monitoring of children
	Self-efficacy regarding shortage of resources (staff, ICT, materials, physical space)
Cross-cutting theme	
12. Equity and diversity in the child group	Composition of children in centre
	Composition of children in target group*
	Approaches to diversity
	Pedagogical practices with second-language learners
	Content of professional development and need for further development regarding equity and diversity
	Self-efficacy relating to equity and diversity practices
* Note: In the Starting Strong questionnaires, some questions ask for information on respondents' teaching of one particular group of children. In order to randomise the selection of the group of children, the question asks ECEC staff to think of one specific group. This group of children is referred to as the "target group".	

Policy issues motivating the TALIS Starting Strong Survey 2018

The TALIS Starting Strong Survey 2018 focusses on factors that contribute to "ensuring quality of learning and well-being environments" (Policy Issue 1), "motivating, attracting and training staff to the profession" (Policy Issue 2), and "developing staff for and within the profession" (Policy Issue 3). The analysis for the first policy issue will focus on questions related to staff professional and pedagogical practices to support child development, well-being and learning, as well as staff beliefs about effective pedagogies. These factors have been identified as particularly influential on children's development, well-being and learning (Anders, 2014, Anders et al., 2012, Pianta et al., 2005, Pianta et al., 2009, Tietze et al., 2005).

The second policy issue on "motivating, attracting and training staff to the profession" is related to the satisfaction and engagement of ECEC staff, and the main barriers to their effectiveness. Recommendations on how to motivate and attract staff to the profession will be derived from the analysis of staff development, job satisfaction and well-being in relation to structural quality characteristics of the ECEC centre (e.g. Munton et al., 2002, NICHD Early Child Care Research Network, 2002b, Goelman et al., 2006), climate (Huntsman, 2008, Moon and Burbank, 2004b, OECD, 2006), stakeholder relations and pedagogical and administrative leadership (Jones and Pound, 2008, Hayden, 1997).

The third policy issue, "developing staff for and within the profession", focusses on questions related to the development of ECEC staff and the extent to which they can be deemed as ECEC professionals. Research shows that a well-trained and knowledgeable workforce is a critical quality component of any ECEC programme (Zaslow and Martinez-Beck, 2006), and is likely to be an important factor in determining children's development (Sheridan et al., 2009). ECEC staff training establishes the knowledge base expected of pedagogical staff to provide a high-quality learning and well-being environment for children, which, in turn, is expected to enhance child development, well-being and learning. Considering the central role ECEC staff play in children's experiences within ECEC centres (Kagan et al., 2008), the TALIS Starting Strong Survey 2018 provides empirical evidence on the level and content of pre-service education and training, as well as the experience of ECEC staff and their in-service professional development.

Issues regarding school policies and teaching approaches within diverse environments have become increasingly important for stakeholders and politicians, and have become the focus of public attention, notably in Europe (OECD, 2015a). The TALIS Starting Strong Survey 2018 provides information on equity and diversity, with a particular focus on socio-economic and cultural equity and diversity within the child group. There is research evidence that ECEC has the potential to improve the life chances of children from disadvantaged families (e.g. Barnett, 2011, Camilli et al., 2010, Dearing et al., 2009, Melhuish, 2011, Melhuish et al., 2015, Zachrisson and Dearing, 2015). There is also evidence that acknowledgement by ECEC staff of cultural diversity in the child group may provide more favourable opportunities for healthy development among minority children (Melhuish et al., 2015) and improve their cognitive development (Sammons et al., 2002). The TALIS Starting Strong Survey 2018 provides an opportunity to compare practices and policies regarding socio-economic and cultural equity and diversity across centres and countries. Information on equity and diversity is collected throughout the instruments referring to different levels (leader, centre, staff-child interactions) and factors (structure and process characteristics) of the ECEC system.

Following the procedure of TALIS, the TALIS Starting Strong Survey 2018 collects background information on ECEC staff, centre leaders and ECEC centres. The background information is intended to reveal basic characteristics that can be used to describe ECEC centres and systems. These background characteristics are also of interest in terms of their relationship to other factors, and contribute to understanding the context (such as socio-economic composition of children) in which results are interpreted and to evaluating the major quality dimension of the degree to which ECEC centres are responsive toward the needs of their children.

TALIS Starting Strong Survey 2018 themes and indicators

In this section, the main themes and indicators of the TALIS Starting Strong Survey 2018 are explored in more detail, along with the theoretical and empirical basis for their inclusion in the study, and their analytical potential. The first part focusses on two themes mainly concerned with ECEC staff-child interaction; the second part on four themes mainly concerned with ECEC centre characteristics; the third part on five themes concerned with ECEC leader and staff characteristics; and the fourth part on equity and diversity in the child group, a theme that intersects with other themes.

In exploring the theoretical and empirical basis for the inclusion of the main themes and indicators, this section describes literature on the relationship between respective themes and indicators, and children's development, well-being and learning. However, the existing literature on child well-being is limited (OECD, 2018); therefore this section mainly focusses on children's development and learning outcomes.

Themes mainly concerned with ECEC staff-child interaction

Process quality of staff-child interaction

Introduction

In ECEC research, the term "process quality" usually refers to children's daily experiences that may foster their development, and includes the physical and emotional care and support, instruction (pedagogical quality) and cognitive stimulation in the ECEC centre (e.g. Burchinal, 2018, Hamre, 2014, Layzer and Goodson, 2006, Mashburn et al., 2008, Pianta et al., 2005). There are processes in many domains of ECEC quality, as described above. In this section, the term is used in the context of staff-child interactions (which is how process quality is most commonly operationalised in the literature (OECD, 2018), and focusses specifically on the pedagogical practices of ECEC staff. Exact conceptualisations of process quality differ somewhat, but usually encompass dimensions of: 1) instructional quality, which is referred to here as pedagogical practices; 2) playroom/classroom and organisation/management; and 3) interaction quality (Hamre, 2014).

Process quality is most commonly measured by trained raters observing interactions in the classroom/playgroup. Thus, the research cited in this section relies on this methodology. Most commonly used are the Environment Rating Scales (Harms et al., 2014, Harms et al., 2017) and the Classroom Assessment Scoring System (CLASS) (Pianta et al., 2008), but alternative approaches, such as the Sustained Shared Thinking and Emotional Well-being (SSTEW) (Siraj et al., 2015) have recently been developed, taking into account new research in this area.

Theoretical background

Process quality is often described as the factor most proximal to the child's experiences in ECEC, and thus as the mechanism responsible for child development, well-being and learning outcomes (Pianta et al., 2009). Other quality features (e.g. group size, staff-child ratio, staff training) are often assumed to influence child outcomes to the extent that they influence process quality, and are, as such, the mediating mechanism between these more distal quality features and children's development. Process quality is therefore a key construct to measure in the TALIS Starting Strong Survey 2018. The learning and well-being environment in ECEC received very high ratings from the countries that took part in the priority rating exercise. These are conceptually closely related to process quality, which is the closest the survey gets to measuring children's actual experiences in ECEC.

As process quality in most conceptualisations is a playroom/classroom-level variable, it is likely to vary as a function of multiple influences, including potentially structural quality characteristics. For instance, high quality interactions may have greater impact on children when staff-child ratios are low, as this provides opportunities for more frequent and sustained interactions (Pianta et al., 2009).

Most studies relating process quality to children's development, well-being and learning rely on correlational research designs. These studies tend to show that children who experience higher process quality also score higher on a range of cognitive and socio-emotional outcomes (see (Burchinal, 2018) for the most recent review). Meta-analyses and secondary analyses of multiple data sets (Burchinal et al., 2011, Keys et al., 2013) support this notion. It is, however, notable that the standardised effect size in these studies is modest (r of approximately .05 to .10 for both cognitive and social-emotional outcomes). Moreover, findings are not consistent. One large and representative US study did not find any associations between process quality and child outcomes (Burchinal et al., 2016). Beyond the United States, small but positive associations between some, but not all, aspects of process quality and child outcomes have been found in China (Li et al., 2016), Portugal (Abreu-Lima et al., 2013), Chile (Leyva et al., 2015) and Finland (Pakarinen et al., 2011). In the United Kingdom, early studies indicated links between ECEC process quality and later language development (Melhuish et al., 1990). However, in later studies the link between ECEC process quality and child outcomes appeared to be strongest for non-verbal and numeracy outcomes, both for ECEC before 3 years of age (Melhuish et al., 2017) and for ECEC 3-5 years (Sylva et al., 2006). More rigorous experimental and quasi-experimental studies of effects of process quality are rare and provide a less consistent pattern. A quasi-experimental study (Auger et al., 2014a) found effect sizes consistent with the meta-analyses cited above, and a randomised study of kindergarten found strong effects of playroom/classroom quality (Araujo et al., 2016). Studies of interventions that enhance process quality find inconsistent or null effects on child outcomes (Pianta et al., 2017, Yoshikawa et al., 2015). Recently, Burchinal et al. (2016) nuanced these findings further by showing that there were thresholds in the associations between quality and child outcomes across multiple studies: below approximately mean levels of quality there was no association, while associations were observed when quality was above average. In the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development (SECCYD), effect sizes for associations between childcare quality (not restricted to ECEC) were about half the size or less than those of parenting quality (NICHD Early Child Care Research Network, 2006) across children aged 1.5 to 4.5 years. The authors argue that the effect sizes of parenting represent an "upper bound" of possible effect sizes (i.e. the largest plausible effect sizes) of a care-giving environment, inflated by genetics and the wider

ecological context of the family. Consequently, they take this as evidence of the importance of childcare quality as a predictor of both socio-emotional and cognitive child outcomes.

Research from the Effective Provision of Pre-school Education (EPPE) study provides some evidence on which pedagogical practices and aspects of experiences and interactions are associated with enhanced child outcomes. The longitudinal study measured how effective ECEC centres were at boosting children's outcomes. Case studies (Siraj-Blatchford et al., 2003) compared ECEC centres that varied in their effectiveness in improving child outcomes. In more effectives ECEC centres, staff demonstrated:

1. More adult-child verbal interaction with more responsive and extended dialogue.
2. Greater understanding of curriculum and pedagogy.
3. Greater knowledge of how children learn.
4. Greater support for children in resolving conflicts.
5. More help for parents to support children's learning at home.

A specific type of interaction, sustained shared thinking, occurred almost only in more effective centres (Siraj-Blatchford et al., 2003). In sustained shared thinking, adults and children work together constructively for an extended period in a creative or problem-solving activity. The adult will often provide support (e.g. scaffolding, see below) for the child's activities to enable the child to control, create or problem solve. This type of interaction is likely to involve activities that help the child develop new concepts and self-regulation, which are central to cognitive, educational and social development. This research stimulated the development of a new observation method for process quality mentioned above, Sustained Shared Thinking and Emotional Well-being (SSTEW) (Siraj et al., 2015). Sustained shared thinking was also found to be captured by the dimensions of instructional process quality in the CLASS observation method (Slot et al., 2016).

Effective pedagogical support of child development, well-being and learning that aims to prepare children for participation in society and later success in life (Vegas et al., 2013, UNESCO, 2013, OECD, 2015b) includes interactions explicitly aimed at supporting learning in higher-order thinking in general, and learning in specific areas (Sylva et al., 2004a, Yoshikawa et al., 2013). In meta-analysis by Camilli et al. (2010) of the results from 123 studies in the United States, in which at least one year of ECEC was provided prior to age 5 and related to long-term effects on development, intentional teaching and individualisation were associated with larger gains for educational outcomes. Thus, preschool programmes with a greater emphasis on educational experiences appeared to have larger effect sizes for educational outcomes. This is supported by a recent review of 38 studies that reported on ECEC programmes that differ in effectiveness for academic outcomes at the end of preschool. Programmes targeting specific learning areas generally improved development in those areas. The authors concluded that aspects of both cognitive developmental and academic approaches have benefits, and called for research to determine the long-term impacts (Chambers et al., 2010).

The concept of scaffolding (Sawyer, 2006, Dorn, 1996, Cazden, 1983) is central to understanding how higher quality staff-child interactions can foster child development and learning. Scaffolding refers to how adults (parents or educators) adjust their ways of interacting with the child to support the child's activities in a developmentally appropriate way to foster the child's learning, development and well-being. Of the different aspects of ECEC, the quality of daily activities and interactions is the most immediate, or "proximal", driver of children's development. For staff to deliver good process quality, they need to be skilled in interacting with children in a way that takes the child's "zone of proximal development" (ZPD) (Vygotsky, 1987) into account. The ZPD lies just beyond the child's

current skills and knowledge. Scaffolding refers to structuring the context of the child's activity in order to enable the child to progress through the current ZPD and hence advance development. For example, where a child is successful with a task, adults may be encouraging but less specific in support, but where a child is struggling, more specific help or advice or guidance may be given in order to enable the child to master the task. There are three central aspects of scaffolding: 1) inter-subjectivity refers to the establishment of a shared understanding between participants (educator and child) in an interaction; 2) joint focus on an activity, such as problem solving or a creative act, is the focus for inter-subjectivity; 3) the educator needs to be sensitive to the child's emerging abilities and to relinquish control as the child becomes able to work independently (Moser et al., 2017). The educator may, at the appropriate time, not act, allowing the child to take control. This not only allows the child to acquire mastery of a task, but also facilitates self-regulation, which is a major developmental achievement in early childhood.

In summary, the process quality of staff-child interactions should be considered a meaningful and important outcome of other quality features in ECEC, and the most proximal ECEC influence on children's development. However, since associations with current measures are (in statistical terms) modest, it is not to be considered as a proxy for child outcomes in ECEC. Moreover, the literature on process quality of staff-child interactions as a causal agent in children's development is sufficiently inconsistent to render reasonable questions about whether the field measures the right factors in the right way. Evidence for the relevance of different aspects of process quality measured in the TALIS Starting Strong Survey 2018 for children's development, well-being and learning is reviewed later in the document.

Pedagogical practices and the ECEC curriculum

The ECEC curriculum, pedagogy and quality are interrelated. The term "curriculum" can refer to the official or national curriculum, as specified by government, and the implemented curriculum, which is provided "on the ground" by staff to enhance children's development, well-being and learning. The official curriculum could be regarded as "steering documents", and may include guidelines for enacting the curriculum. The implemented curriculum can be regarded as the "experienced" or the "realised" curriculum, i.e., what staff do in their daily practice and what children experience day-to-day. In this sense, pedagogical activities can be regarded as the daily implementation of the curriculum, and the quality of such implementation can be referred to as curriculum quality. Hence, curriculum quality refers to the extent to which the competences and skills that are the goals of the curriculum are realised through the pedagogical activities that children experience (Pianta et al., 2005, Sylva et al., 2007). Process quality refers to the aspects of children's experience in ECEC that potentially affect their development, and will include the nature of the child's experiences and interactions, and the pedagogical activities experienced.

The national ECEC curriculum reflects a society's consensus on important goals and values regarding young children's development, well-being and learning. Examination of ECEC curriculum guidelines within European countries reveals that while curricula vary widely, there is a common core regarding: the view of the child as an active learner and participating in his or her own development; the importance of broad "holistic" goals for development and learning; and the importance of play and playful learning to serve holistic development (Sylva et al., 2015). Publications from other countries reveal similar perspectives in the United States (NAEYC/NAECS-SDE, 2003), New Zealand (Ministry of Education, 2017b), Australia (DEEWR, 2010), Canada (Ontario Government, 2007),

Japan (Ministry of Education, 2017a), and Latin America and the Caribbean (Gomez and Harris-Van Keuren, 2013). A survey in 11 European countries also revealed that holistic perspectives are largely shared by parents, ECEC staff and policy makers, with respondents mentioning a wide range of academic, cognitive, emotional, and social competences as development and learning goals for children (Moser et al., 2017).

In looking at European curricula, (Sylva et al., 2015) found that they were holistic, with a broad range of development and learning goals being specified. However, there was an imbalance between the explicit elaboration of goals relating to cognitive, communicative and (pre)academic competences, and the less detailed articulation and elaboration of social, emotional, and moral competences that can be regarded as "21st century skills" (e.g. openness to experiences and learning, creativity, self-regulation, interpersonal relational competence). There was also an imbalance between curriculum guidelines for the age ranges of 0-3 years and 3-years to school age. For the youngest children, curriculum guidelines were often absent, or less elaborated and less holistic.

The curriculum can play a crucial role in ensuring that children receive care and education that facilitates their development of cognitive and academic skills, and thus helps them to acquire school readiness skills during preschool years (Yoshikawa et al., 2013). Curricula vary widely in their design and focus. In their recent review, Yoshikawa et al. (2013) distinguished between global curricula, which tend to have a wide scope and refer to activities thought to promote development in all areas of learning, and developmentally focussed curricula, which are designed to promote learning in specific content areas. Developmentally focussed curricula are generally added to a global curriculum that is already in place.

The body of evidence on the effectiveness of global curricula is slim, and while there is some supporting evidence (Diamond et al., 2007, Lillard and Else-Quest, 2006), much of what exists indicates no or only small gains associated with their use (Bierman et al., 2008, Clements and Sarama, 2007, Preschool Curriculum Evaluation Research Consortium, 2008). However, there is strong evidence that developmentally focussed curricula can be effective in the targeted domain of children's development for mathematics curricula (Clements and Sarama, 2008, Jörns et al., 2015, Starkey et al., 2004), as well as language and literacy curricula (Bierman et al., 2008, Fantuzzo et al., 2011, Farver et al., 2009, Lonigan et al., 2011, Preschool Curriculum Evaluation Research Consortium, 2008, Wasik et al., 2006, Whitehurst et al., 1999), although this might also reflect that it is easier to assess outcomes for specific rather than global curricula. Other research has shown only moderate effects of relatively large doses of a curriculum with high-quality language instruction (Justice et al., 2008a), and a recent meta-analysis of German language training programmes found lower effects on phonological awareness compared to studies from English speaking countries (Fischer and Pfost, 2015).

Auger et al. (2014b) attempted to compare curricula based on whether their target domain was the "whole child"/global curricula or a specific academic domain (literacy, mathematics). The study investigated whether the type of curricula children experience during preschool (age 4) is differentially related to their school readiness in terms of their mathematics, language, literacy, and social-emotional skills. Findings indicate that both the literacy and mathematics curricula served to improve skills in the targeted content domains. However, the domain-specific literacy curriculum also showed some negative effects on social skills and problem behaviours, implying a possible trade-off between cognitive and social-emotional outcomes.

The available evidence indicates that staff pedagogical practices are linked to child outcomes. The evidence is limited for ECEC for children under 3 years of age, but is more extensive for children over 3, as summarised partly above and more extensively in the following sections.

Play

A report from the Curriculum Quality Analysis and Impact Review of European Early Childhood Education and Care, known as the CARE project, used data from 11 European countries to demonstrate the importance of play and scaffolding for process quality in ECEC, and stated that they provide the context for the child to advance his or her ZPD (Moser et al., 2017). Play, well-being, learning and development are closely interwoven in childhood. Play as a child-driven activity with intrinsic value has no need for further legitimisation, but it is also central for educational processes, for instance, as a main "approach" or "pedagogy" in ECEC (Ciolan, 2013). Thus, play represents meaningful and mainly self-controlled activity that makes children agents in their own lives. Play is also a child-centred, age-appropriate and group sensitive activity with high motivational and emotional engagement that promotes learning and development and that can be initiated and supervised by staff to deliberately address children's current and future well-being (play-based learning). There is some (Barnett et al., 2008), though limited (Lillard et al., 2013), international evidence of the value of play for both social and cognitive outcomes. For example, a US study found that playing with peers promotes the development of social skills (Eggum-Wilkens et al., 2014), and Dutch studies have found that free play promoted children's co-operation in activities (Leseman et al., 2001), and that the quality of pretend play is linked to children's self-regulation (Slot et al., 2017). For language development, a different US study found that verbal staff-child interactions during play promoted the use of abstract language among children (Tompkins et al., 2013), and a Malaysian study showed that a play-based learning approach was associated with better language development for children than conventional teaching (Nair et al., 2014). In light of these findings, ECEC practitioners should take a clear position on how play and related terms (e.g. playfulness, playful learning, playful approach, adult initiated play, free play) are understood and integrated into practice, and understanding of how the functions of play can be considered as an important characteristic of high-quality provision (Montie et al., 2006, Moser et al., 2017).

Interaction quality and socio-emotional development

The quality of staff-child interactions is often studied with a specific focus on emotional support, in addition to pedagogical practices (also termed instructional support, Hamre (2014)). Emotional support is characterised by sensitive and consistent emotional responses from staff. Such positive relationships have been associated with children's development of pro-social behaviour (Johnson et al., 2013) and self-regulation (Williford et al., 2013). Emotionally supportive staff can also help children with behaviour problems to learn in ECEC settings (Dominguez et al., 2011), and reduce the biological stress-responses associated with time spent in childcare settings (Hatfield et al., 2013).

Strategies used by staff to promote pro-social behaviour and prevent or manage disruptive or aggressive behaviours have been identified in a recent meta-analysis as preventing the development of externalising behaviour problems. In particular, the use of specific social skills training programmes is effective (Schindler et al., 2015). Such programmes typically focus on the encouragement of pro-social behaviours, rather than the punishment of unwanted behaviours.

Pedagogical practices and language and literacy

A number of large-scale studies in the United States on early childhood education (3-5 year-olds) across multiple states found that gains during children's preschool year in language and academic skills were related to the quality of instruction, as well as the time spent in specific types of pedagogical or instructional activities (Howes et al., 2008, Mashburn et al., 2008). The gains relating to the quality of the preschool experiences were maintained throughout kindergarten (Burchinal et al., 2008a). These findings are consistent with evidence from Chile, where higher quality teacher-child interactions predicted better language development and higher scores in other cognitive domains (Leyva et al., 2015). There is also evidence of the effectiveness of early interventions at the preschool level. For example, a recent study in the United States used a sample of disadvantaged 3-5 year-old children in collaborative Head Start classrooms to test the effectiveness of an early literacy intervention for children's vocabulary, phonological awareness, and print knowledge (Hilbert and Eis, 2014). The teacher's language input was related to vocabulary growth (Bowers and Vasilyeva, 2011). Dickinson (2011) and Dickinson and Porche (2011) also cite a meta-analysis and their own work on preschool language curricula and fostering complex (academic) language. There were no effects overall on later language and literacy when there was low implementation fidelity by teachers with difficulties in instruction practices. However, more focussed interventions (e.g. vocabulary instruction, shared book reading) had greater success. Some of the inconsistencies in findings may be explained by differences in the quality of instruction, often not captured by studies focussing on the amount of specific educational activities. The International Association for the Evaluation of Educational Achievement's (IEA) international pre-primary project (Montie et al., 2006) found that children were likely to have higher language scores at age 7 if they attended centres where less time was spent in whole group activities and where staff allowed children to choose their own activities, compared to children who had attended centres where personal care and group activities predominated. They also scored higher than children who had been in settings where pre-academic activities predominated (although this was a non-significant trend). The authors suggested free choice activities may be more interesting and engaging to the child, and the difficulty level more suitable than those proposed by ECEC staff, who can use such activities to engage in relevant conversation and introduce new vocabulary. In addition, these activities allow opportunities for children to interact verbally with other children. Peer group influences in ECEC have been found to be important for child outcomes (Melhuish et al., 2008a). A United States study found that peers' language skills seemed to have the greatest bearing on children who themselves have poor language skills, while the effect is negligible for children with advanced language (Justice et al., 2011). Moreover, a study from Norway found that belonging to a peer group with better language skills seemed to attenuate language differences due to educational background (Ribeiro et al., 2017).

Pedagogical practices and numeracy and/or mathematics

Little attention has been paid historically to children learning mathematics before they enter formal schooling. This stems partly from beliefs that ECEC should consist of a nurturing environment that promotes social-emotional development, with academic content primarily focussing on language and literacy development. A seminal work on the learning of mathematics in early childhood is "Mathematics Learning in Early Childhood" by the Committee on Early Childhood Mathematics of the National Research Council (National Research Council, 2009). The study showed that preschool children think about numbers,

can grasp mathematical concepts, frequently "mathematise" (think of real-world problems in explicitly mathematical terms) and, under the right conditions, solve mathematical problems. The research demonstrates that virtually all young children have the capability to learn and become competent in mathematics. Furthermore, preschool children enjoy their early informal experiences with mathematics. Unfortunately, many children's potential in mathematics is not fully realised, especially for those who are economically disadvantaged. This is partly due to a lack of opportunities to learn mathematics in early childhood settings or through everyday experiences, which reflects a lack of attention to mathematics throughout the early childhood education system, including standards, curriculum, instruction, and the preparation and training of the ECEC workforce. Improvements in early childhood mathematics learning opportunities can provide young children with the foundation for later success (Rittle‑Johnson et al., 2017). The lack of opportunity for mathematics-related learning in many ECEC settings is evident in ratings of education for mathematics in ECEC settings (Sylva et al., 1999).

In addition, ECEC staff are often uncomfortable with activities related to mathematics learning (Clements and Sarama, 2007, Lee and Ginsburg, 2007a, Ginsburg et al., 2006). Many ECEC staff may avoid teaching mathematics because of their own negative early experiences with mathematics. However, there are many ways that ECEC staff can intentionally structure children's experiences so that they support learning in mathematics. Throughout the day and across various contexts - whole group, small group, play, and routines - ECEC staff need to be active and draw on a repertoire of effective strategies. The skill of adapting activities to the content, type of learning experience, and individual child, with a clear learning target as a goal, is called intentional teaching (Epstein, 2007, NAEYC/NAECS-SDE, 2003). Within ECEC contexts, intentional teaching or intentional pedagogy has come to be seen as increasingly important for all aspects of ECEC pedagogy (Siraj-Blatchford, 2014).

Findings from empirical studies that explore the association between early learning activities related to mathematics and mathematics gains are inconsistent. Based on the large-scale US Early Childhood Longitudinal Study, Kindergarten Class (ECLS-K), researchers reported that time spent on reading instruction was related to reading gains, whereas time spent on mathematics instruction was not related to mathematics gains (Walston and West, 2004). Others (Choi and Dobbs-Oates, 2014) reported only limited evidence for links between the frequency of mathematics-related activities in preschool and children's mathematics gains, with only the frequency of activities related to patterns and shapes identified as a significant predictor. However, other studies found that the amount of time spent on informal mathematics, and the amount of mathematics-related talk during circle-time, were associated with a growth in children's mathematic competence (Klibanoff et al., 2006, de Haan et al., 2013a).

Pedagogical practices for children under 3-years-old

There is general consensus that children in the first three years of life who participate in ECEC need predictable activities and routine care that is provided within a balanced curriculum (Dalli et al., 2011, Melhuish, 2004). This involves play-based activities and routines, the use of narrative and storybook reading, and informal conversations - both within child-staff interactions and peer relationships and interactions. However, research with children under 3 provides little evidence on specific pedagogical practices that can be used to support children's language or their development of the skills that support areas of academic learning, such as early literacy or mathematical understanding, in ECEC environments. There is also little systematic evidence that indicates how specific

pedagogical strategies can be best combined with sensitive, responsive and warm interactions and relationships in order to ensure the healthy all-round development of infants and toddlers (Downer et al., 2010) - though the CARE project includes some case study examples of integrated models of high child-centredness and high instructional quality (Slot et al., 2016).

For the under-3 age group, most knowledge about children's development and learning, and the ways in which learning takes place and is best supported, stems from research within developmental psychology, or observations within the home environment - in particular between mothers and their infants and toddlers (Evangelou et al., 2009). While little is known about the specifics of pedagogy within ECEC environments, there is some indicative, though mixed, evidence. Melhuish et al. (1990) found that the extent of ECEC staff communication and responsiveness in interactions were predictive of children's later language development. Similarly, the NICHD SECCYD Study found that the observed language stimulation provided by ECEC staff was positively associated with children's performance on measures of cognitive and language skills at 15, 24 and 36 months (Huntsman, 2008). Furthermore, Girolametto et al. (2003) have shown that increased responsiveness by ECEC staff in the use of interactive language stimulation techniques was positively related to children's language use. McArthur (1995) has shown how using familiar songs, rhymes and rhythms with movements fosters children's early language skills. Storytelling using familiar storybooks and repeating the same storybook offers infants a sense of security and familiarity, and promotes vocabulary development (Evans et al., 2001). Whitehead (2007) suggested that looking at books and other texts together, even if only talking about the pictures and pointing to familiar objects, promotes emergent literacy skills. Moreover, while the Dutch pre-COOL study initially revealed no effects of the provision of academic activities, including language, literacy and mathematics activities, on the development of 2-year-old children's vocabulary or attention skills one year later (Slot, 2014); later analyses found that language and mathematics activities were related to vocabulary growth in disadvantaged children (Leseman et al., 2017). Likewise, an intervention study in toddler childcare that focussed on a responsive teaching style, in combination with a developmentally appropriate academic curriculum, also failed to reveal effects on children's cognitive and language outcomes (Landry et al., 2014, Ansari and Purtell, 2017).

Approaches to pedagogical practices

Child-centred vs. didactic pedagogy

A distinction is often drawn between child-centred instruction (activities are child-initiated, children engage in problem solving and inquiry-oriented learning) and didactic instruction (staff-directed, planned tasks focussing on acquiring and practicing academic skills). Both approaches may boost academic skills, but there is some evidence that child-centred instruction may be more effective (Huffman and Speer, 2000). A Finnish study (Lerkkanen et al., 2012) looked at kindergarten (6-year-olds) teaching practices and children's interest in reading and mathematics. They found that children were more interested in mathematics and reading when child-centred instruction was prioritised. Similarly, instruction that blended child-initiated and staff-directed instruction led to higher levels of school readiness and early school achievement (Graue et al., 2004).

Developmentally appropriate practice (DAP) versus didactic instruction

Some approaches to ECEC pedagogy stress the importance of the staff-directed transmission of skills related to the curriculum. This results in a didactic approach even with very young children, where direct instruction and rewards are used to reinforce learning processes with the aim of preparing children for primary school. ECEC programmes for low-income and ethnic minority children working with direct academic instruction have been reported to be effective in obtaining desired cognitive and academic goals (e.g. Dickinson, 2011, Gersten et al., 1988, Justice et al., 2008b, Schweinhart and Weikart, 1997). Nonetheless, the approach has been criticised for having negative effects in the socio-emotional domain (see for example Burts et al., 1992, Haskins, 1985, Stipek et al., 1995).

Currently, the consensus view can be characterised as social-constructivist, which stresses the importance of children's intrinsically motivated activity and initiative as the motor of development (McMullen et al., 2005, Pramling-Samuelsson and Fleer, 2009), but acknowledges that development does not take place in a cultural void. The role of ECEC staff, therefore, is not confined to creating conditions for optimal self-propelled development; staff should also deliberately introduce children to cultural domains, such as academic language, literacy, numeracy, mathematics and science. However, how this is carried out should respect developmental and motivational principles and allow children to take initiative and, where appropriate, determine their own routes through the curriculum using construction and symbolic pretend play and collaborative work in small groups as the main vehicles to stimulate development. This consensus is reflected in the concept of "developmentally appropriate practice" (DAP) coined by (Bredekamp, 1987). Despite this consensus, ECEC programmes still differ in emphasis. In many countries, pressure by policy makers for immediate results in easy measurable domains, such as literacy and maths, and the increasing emphasis on accountability may undermine the developmental approach and lead to a more didactic approach (Dickinson, 2002, Marcon, 2002). This pressure may be particularly focussed on programmes serving disadvantaged low-income and minority children at risk of educational failure.

Critical to the issue of developmental versus didactic approaches is whether programme effects are assessed in the short or long term. Although didactic and academic programmes may be as effective, or even superior to, developmental approaches in achieving cognitive and language goals in the short term, several studies reveal that long-term benefits, including school achievement, are greater for developmental programmes, presumably because of the greater positive effects on children's socio-emotional competence, self-regulation and intrinsic motivation. (Schweinhart and Weikart, 1997) compared the High/Scope curriculum[22] with a didactic basic skills oriented programme and a traditional approach, characterised as "*laissez faire*". In the short term, the didactic programme and the High/Scope curriculum were equally effective in the cognitive domain, but additional advantages of the High/Scope curriculum became evident in the longer term, with better self-regulation, work attitude, motivation, and social and behavioural adjustment resulting in superior social outcomes (e.g. less crime, more economic independence) in adulthood compared to the other approaches. These later social outcomes are similar to the outcomes reported for the Perry Preschool Project, the predecessor of the High/Scope curriculum.

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[22] The High/Scope curriculum uses a developmental-constructivist approach to early education, in which adults would engage children as active learners and children would have the opportunity to initiate much of their own activities Schweinhart, L. J. & Weikart, D. P. 1997. The High/Scope preschool curriculum comparison study through age 23. *Early Childhood Research Quarterly,* 12/2, Elsevier, Amsterdam, Netherlands, 117-143.

Focussing on children primarily from low-income and minority families, Marcon (1999) compared three preschool approaches for their effect on children's development and mastery of language, literacy and mathematics at the end of preschool. The results revealed that children who attended a child-centred, developmental preschool (DAP approach) demonstrated greater mastery of basic skills at the end of preschool than children in programmes with a didactic approach. However, the advantage of child-centred over academic preschools was small, and both programmes had far better results than a mixed model approach that combined elements of both approaches. In a follow-up study, a more complex picture was found, with Marcon (1999) concluding that children from child-centred and mixed preschools were better prepared to face new challenges in grade four (such as independent work and higher demands on language understanding in reading comprehension).

There may also be age-related effects, as programmes for children under age 4 or 5 should work predominantly in a child-centred (DAP) way, whereas programmes for older children can introduce academic subjects in a more planned, staff-directed curriculum without negative social-emotional consequences. A later emphasis on academic skills after a predominantly developmental approach may provide better support for the transition to primary school. Evidence for such an age effect is reported by Stipek et al. (1998) who compared four groups of mainly low-income and ethnic minority children attending either a DAP (referred to as "social-emotional") or a basic skills oriented preschool from age 3 to 5, and after preschool either a developmental or a basic skills oriented kindergarten from age 5 to 6, before starting primary school. The results indicated that a DAP curriculum in preschool up to age 5 produced positive developmental effects in both academic and social-emotional domains, regardless of the type of kindergarten attended in the third year. However, a greater academic focus in kindergarten (age 5 to 6) after two years in a DAP-focussed preschool, had slightly better learning outcomes in primary school, and no negative social-emotional outcomes compared to programmes with a continued DAP focus. The latter programmes were slightly better for problem solving and language comprehension.

In summary, evidence indicates that ECEC curricula designed according to the pedagogical principles of DAP and involving play and collaborative work may be particularly important for the development of cognitive control, self-regulation, and creativity, which are seen as important learning-related skills (Diamond and Lee, 2011, McClelland et al., 2006). The development of cognitive control and emotional self-regulation in early childhood has been found to be promoted by peer interaction in pretend play (Berk et al., 2006, Bodrova, 2008). The development of emotional self-regulation has been related to socio-dramatic play, with children taking up roles that require imagining others' state of mind (Elias and Berk, 2002, Slot et al., 2017).

The distinction between DAP and didactic instruction is an oversimplified way of characterising the challenges of devising ECEC pedagogy. The evidence indicates that a developmental approach is the best option for the youngest children, whereas older preschool children should be gradually prepared for the learning tasks they encounter in primary school. An academic orientation on basic skills (for instance, concerning phonological awareness and letter knowledge) can be embedded in a curriculum of playful activities in small groups, including episodes of shared dialogical reading and talking with the ECEC staff, to foster children's deep vocabulary, discourse comprehension skills and world knowledge (Bus et al., 2012, Dickinson et al., 2003). This can also be considered "developmentally appropriate practice" and can be integrated in "intentional teaching" in ECEC (Siraj-Blatchford, 2014).

Analytical potential and indicators

Within theme analyses

There is a need to explore predictors of process quality beyond existing evidence, both within and between countries. Of particular relevance are analyses of within and between-country heterogeneity of pedagogical practices and play. Analyses of between-country heterogeneity are conditional on measurement comparability. If the measure is not comparable across countries, detailed analyses of between-country differences in the structure of the process quality measure may be informative about how quality is conceptualised across countries.

Cross-theme analyses

Indicators related to the process quality of staff-child interaction will be key dependent variables in the TALIS Starting Strong Survey 2018, and most likely a relevant outcome in the analyses of the majority of constructs measured in the survey. Analyses within and between countries can shed light on associations between resources available to ECEC centres (e.g. funding and funding structures) and process quality; and whether possible associations between available resources are explained by structural quality indicators. This may be extended to include within and between-country analyses of associations between centre environment indicators and dimensions of process quality, including complex associations (for instance, is the association between staff training or professional development and process quality conditional on group size, staff-child ratio?), and finally within and between-country analyses of equity in process quality (e.g. do children of different social and cultural backgrounds experience the same levels of process quality?).

The TALIS Starting Strong Survey 2018 includes separate indicators on the process quality of staff-child interaction to cover its multiple dimensions:

- beliefs about enhancing the development of children's abilities and skills

- engagement in collaborative professional practices

- facilitating numeracy learning

- facilitating play and child initiated activities

- facilitating pro-social behaviour

- language stimulation and support for literacy learning

- staff emotional support for children

- content of professional development and need for further development regarding process quality of staff-child interaction

- pedagogical practices with second-language learners

- self-efficacy regarding process quality of staff-child interaction

- time spent on process quality.

Monitoring and assessment of children's development, well-being and learning

Introduction

Monitoring and assessment are closely related terms that refer to how early childhood professionals gain understanding of children's development and learning. The term "assessment" in ECEC is typically used to refer to producing an estimate of a child's development, well-being and learning; while the term "monitoring" typically refers to tracking changes over time to improve performance and achieve results. For both monitoring and assessment there are a range of formal and informal methods available. The terms may be used regarding children or, occasionally, an ECEC service or centre. Shepard et al. (1998) describe five major purposes for assessing and monitoring children as follows:

1. **Improving learning**

This is often called formative assessment, where children's skills are assessed to help staff adapt to individual children's needs. Monitoring or assessment may be informal, such as observations or examples of children's work, or may be more formal. For such a purpose, the content of monitoring methods or assessments should be closely linked to the curriculum in order to see if children's progress follows that intended by the curriculum, and if not this may indicate a need to revise the curriculum or its implementation. Formative monitoring and assessment can indicate children's strengths and weaknesses. Staff can then appropriately adapt how they work with children. Formative monitoring and assessment can also help families to better understand their children's development.

2. **Identifying children with special needs**

This type of monitoring or assessment generally uses a two-step process. First, all children are screened. If the screening suggests that a child's development is atypical, then the second step is implemented and the child is referred for a more thorough assessment to determine specific needs and eligibility for special education or related services.

3. **Evaluating programmes**

Monitoring or assessments of children's skills are often included in evaluations to determine the effectiveness of early childhood programmes. Methods chosen for this purpose should reflect pedagogical goals to check if children are benefitting from the learning experiences offered by the curriculum as implemented, and if the learning experiences are appropriate for the children. The degree to which an ECEC setting might be considered as effective can be evaluated by, for example, showing that a representative sample of children has improved in specific developmental areas by the implementation of respective activities (e.g. staff training on improving children's learning). Such monitoring or assessment may provide useful feedback to help administrators continuously improve programme quality.

4. **Monitoring trends over time**

Where monitoring or assessment provide a cross-sectional snapshot of children at a specific time, and this is repeated over several years for different cohorts of children regularly (e.g. yearly), policy makers can monitor trends (for example, determine whether, over time, children come to school with more skills). For these purposes child monitoring or assessment may occur only for a representative sample of children.

5. Using monitoring or assessment for high-stakes accountability

Monitoring and assessment become high stakes if they are used to make decisions about individual children or teachers. Monitoring or assessment tools for this purpose must meet rigorous standards of technical accuracy as they will be used to make important decisions about individuals. Additionally, the monitoring or assessment methods need to meet high standards with respect to several aspects, including:

- Content
- Theoretical foundation
- Instrument development
- Implementation
- Research support for analysis and interpretation

Because few monitoring or assessment tools for young children meet high standards, Shepard et al. (1998) recommend that no child monitoring or assessment results are used for high-stakes accountability purposes until children are around 8-9 years of age, when child monitoring and assessment methods are consistently of high enough technical accuracy to justify such high-stakes use.

Once data are available, it may be tempting to use them to make decisions about individual children and staff. The potential risk for harm must be considered before any monitoring or assessment data are collected. Safeguards should always be in place to minimise risks, including ensuring the technical adequacy of methods of monitoring and assessment. This use of monitoring or assessment increases the likelihood of staff either consciously or unconsciously influencing the results to suit other purposes, thus making the monitoring or assessment of little value. Gathering evaluation data on a sample of children, rather than all children, can minimise the likelihood of information being used inappropriately to make decisions about individual children or judgments about individual staff (although it also increases the uncertainty of the results, particularly in small ECEC settings).

Theoretical background

The distinction between formative and summative monitoring and assessment is particularly relevant in the ECEC field. Formative monitoring or assessment includes a range of formal and informal child assessment or monitoring procedures conducted by ECEC staff during routine activities in order to modify the environment, activities or curriculum to improve young children's learning and development. Formative monitoring often uses staff observations and focusses on children's well-being and engagement.

Summative monitoring or assessment indicates the current level of functioning of the child in terms of well-being development or learning by reviewing documentation gathered from a range of sources. These processes produce information about what the child knows, understands, and can do. Summative monitoring or assessment differs from descriptions of learning that derive from documentation, such as anecdotal records, photos or learning stories, as it involves reviewing information from systematic methods of monitoring or assessment to understand and document the developmental progress of the child.

Formative and summative monitoring and assessment are not always mutually exclusive, and can be combined. However, ECEC staff in many countries have traditionally been most supportive of formative monitoring or assessment, and most concerned with the potential misuses of summative methods. ECEC staff are frequently urged to adopt reflective

practice. In relation to assessment and monitoring, this involves questioning what is known about the child, interpreting the information collected, and reflecting on what is known about a child's learning and development and how to support the child. Colleagues, families and the child may be involved in the process to add different perspectives that lead to a deeper understanding of the child's progress.

A concern in some cultures that child monitoring or assessment may lead to an increase in the "schoolification" of ECEC pedagogy may influence opinions, beliefs and practices regarding child monitoring and assessment. As ECEC staff often regard ECEC pedagogy as different to school pedagogy, they may regard the "schoolification" of ECEC settings as detrimental, and may therefore resist child monitoring and assessment because of associations with "schoolification". If ECEC practices, including monitoring, become similar to those at school, the focus may shift from children's participation to achieving specific learning or other outcomes for children (Alcock and Haggerty, 2013, Lazzari and Vandenbroeck, 2013). These concerns about "schoolification" or the nature of the role for ECEC settings in preparing children for school is likely to vary significantly between cultures. Further information on such cultural differences would inform this debate.

Research has shown that ECEC staff who know children's level of development demonstrate better pedagogical practices. Where staff have knowledge of the level of development of children in specific areas, such as motor development, language development, social development, emotional development and self-regulation, they are better informed to adjust their practices to suit the child's needs (Barblett and Maloney, 2010). There is a range of techniques for child assessment and monitoring, such as subjective judgments, narrative reports of child behaviour, and standardised assessments. These different methods require different types and levels of staff training in the relevant techniques, and assessment and monitoring in the ECEC field is very varied and often haphazard.

As stated earlier, ECEC staff are more often concerned with formative monitoring or assessment, which refer to the processes that ECEC staff use to gather and analyse information about children's development, well-being and learning in order to inform planning and evaluation. The Educators' Guide to the Australian Early years Learning Framework (EYLF) (DEEWR, 2010) refers to monitoring or assessment as:

> *"...an ongoing process of using observations or evidence to make judgements about children's learning and educators' pedagogy. Assessment includes interpreting children's learning against learning outcomes in order to plan for further learning and to report to parents and others about children's learning" (p. 37).*

In this quote, "observations or evidence" can refer to a wide range of information derived from different sources, and there is little commonality to the methods used. The following section deals with the range of assessment methods used in ECEC.

Assessment and monitoring in ECEC

Formative monitoring or assessment can involve the use of several methods - observation, task, and flexible interview - to collect information about children's development and learning, and then adapt activities to help suit children's needs (Brodie, 2013). It is often inseparable from ongoing pedagogical activities and usually not distinctly identified as assessment as staff assess children all the time, sometimes even without realising. However, formative monitoring or assessment can also be more deliberate and organised (Guddemi and Case, 2004).

ECEC staff have traditionally used formative monitoring or assessment through informal methods such as naturalistic observations and anecdotal records. Recommendations from the field and professional literature indicate the need for assessment systems that use ongoing, multiple methods for gathering information (Shepard et al., 1998, NAEYC/NAECS-SDE, 2003). Shepard et al. (1998) point out that monitoring and assessment presents particular difficulties with young children and it can be difficult to find methods that are reliable and valid.

Monitoring or assessing child development, well-being and learning can play an important role in improving staff practices and service provision, and thus enhance children's development (Litjens, 2013). To achieve such benefits, there is a need for age-appropriate methods, consideration of whether methods are enjoyable or stressful for children, and ongoing monitoring or assessment of children (Meisels and Atkins-Burnett, 2000, Copple and Bredekamp, 2009).

The monitoring or assessment of child development, well-being and learning can help ECEC staff identify the needs of children and support their development. It is thus a key component of the development and teaching or caring cycle (Barblett and Maloney, 2010). Monitoring or assessing child development is a crucial part of making information on children's skills and development available to ECEC staff and parents, and of informing their decisions. Such knowledge can improve staff interactions with children and help adapt curricula and standards to meet children's needs (Litjens, 2013).

It is also important to ensure the developmental appropriateness of the tools used for assessment (Meisels and Atkins-Burnett, 2000, Sattler, 1998), and they should be designed to identify children's development, well-being and learning needs, abilities and skills, according to their age (Barnett et al., 2014, Waterman et al., 2012).

Authentic, naturalistic observations carried out on an ongoing basis, for instance through portfolios or narrative assessments, are regarded within the ECEC profession as particularly suitable for assessing the development of young children and supporting their development in ECEC settings (Meisels and Atkins-Burnett, 2000, Copple and Bredekamp, 2009). There is some evidence of a positive relationship between the use of non-formal monitoring practices, such as observation, documentation, portfolios or narrative assessments, and children's development, well-being and learning (Bagnato, 2005, Meisels, 2003, Grisham-Brown, 2008). A study in the United States measured practices and environments to promote children's development in literacy and language and found positive effects: there were higher levels of quality where a curriculum-based child assessment tool was used, where the development of portfolios was aligned with the federal programme for early learning, and where the child assessment information was integrated into instructional planning (Hallam et al., 2007).

Children's voices can also provide some useful information about their experience in ECEC and wider societal issues (Clark, 2005, MacNaughton, 2003, Sorin, 2003). The importance of considering the view of the child in monitoring the quality of ECEC provision is often emphasised, but more research on the validity of instruments and their effective implementation is needed (NAEYC, 2010).

If child monitoring or assessment is used to delay or deny school entry, it may have a negative impact on child development. This assessment for accountability or high-stakes decision use is not supported by the recommendations of professional associations. There is the risk that some children may be labelled as failures at the start of their school career. Postponing admission to school has not been linked to better performance, and such a delay

can deprive children of interaction with their peers, which provides a key opportunity for cognitive development. Children subject to such delays have also been found to display more behavioural problems (Copple and Bredekamp, 2009, NAEYC, 2010).

It is important to ensure age-appropriate monitoring or assessment practices, and there is a need to consider holistic methods of monitoring or assessment that are not limited to measuring narrow cognitive domains (see also Barnett et al., 2014). Child development is not only reflected in academic knowledge and cognitive skills, but also by physical well-being, motor development, social-emotional development and approaches toward learning (Barblett and Maloney, 2010, Raver, 2002, Snow and van Hemel, 2008). Monitoring child development should respect values and beliefs about child development in a particular society, and involve family and community members to ensure that the cultural context is considered (Espinosa and López, 2007, Oliver et al., 2011, Broekhuizen et al., 2015). This is also stressed in the OECD Network on ECEC's document "Early Learning and Development: Common Understandings" (OECD Network on ECEC, 2015). Culture is part of the child's environment and guides behaviour. Cultures have different values and regard concepts such as intelligence differently. For example, non-Western cultures may focus on the child's abilities to perform skills necessary for everyday activities, while Western cultures place value on measures of intelligence or IQ, which may not be of concern in non-Western cultures. Hence, cultural experience has a big effect on views of assessments and the response to assessment tasks. Monitoring and assessment methods developed for Western children may not have the same meaning for non-Western children. At the moment, there is no method that is "culture free", which makes taking account of cultural differences an important part of any monitoring or assessment situation. Children must be viewed within their cultural context and there needs to be sensitivity to cultural variation (Grieve, 1992).

A review by Barnett et al. (2014) sought to provide analysis for decision making on the assessment of children's development, well-being and learning for national and international data collections designed to inform ECEC policies. Considering the challenges set out above, the review proposed the following criteria to determine the scope and tools of child outcomes assessments for an international study:

1. Measures should cover the aspects of children's learning, development and well-being that are important, and of concern, to policy makers and the general public.

2. Measures must be valid, reliable, fair, and developmentally appropriate to indicate what matters.

3. Assessments should be practical and affordable.

4. Results should enable comparability within and across countries and over time, especially for international studies.

The authors concluded that: "assessments available offer many choices for measuring children's physical, social, emotional, linguistic and cognitive development with respect to age, mode of assessment, the source or respondent and burdens on respondents. There are fewer choices for assessments of executive functions and for some cognitive measures in the areas of maths and science. Very few options are available for assessing development in the arts and culture and for approaches to learning […]. None of the [reviewed comprehensive] assessments […] measured self-esteem, self-efficacy, values and respect, or subjective states of well-being, such as happiness" (Barnett et al. 2014: 37-38).

The OECD (2015b) Starting Strong IV report surveyed 21 countries or jurisdictions on the use of instruments for monitoring child development. The report categorises assessment and monitoring methods into the broad categories of direct assessments (standardised assessments and screening instruments), narrative assessments (storytelling and portfolios) and observational methods (rating scales and checklists). These are explored further below.

Direct assessments

Direct methods of monitoring and assessment are intended to measure children's knowledge, skills or aptitudes. Standardised methods are designed in such a way that the questions, conditions for administering, scoring procedures and interpretations are consistent and administered and scored in a predetermined, standard manner for all assessed children, and typically allow a child's performance to be related to a representative sample of children of a similar age.

Screening is designed to identify problems or delays during normal childhood development. It usually involves a short assessment of whether a child is learning basic skills as he or she should, or whether any delays are apparent. Screening tools can include some questions that a professional asks a child or parent guardian (depending on the child's age). They may be conducted through interactions with the child during an assessment to see how he or she plays, learns, speaks, behaves and moves. Screening is often used to identify developmental delays or learning disabilities, speech or language problems, autism, intellectual disability, emotional/behavioural conditions, hearing or vision impairment, or attention deficit hyperactivity disorder (ADHD), and is often followed by further in-depth assessment.

Narrative assessments

Narrative methods of monitoring and assessment describe children's development through narratives or stories and are considered a more inclusive approach as they involve professionals' and children's work, and can also include inputs or feedback from parents or guardians. This approach is not restricted to the final product, but informs staff and parents about how a child has carried out, planned and completed a specific task (Katz and Chard, 1996).

Storytelling usually involves different examples of work and feedback that tell the story of the child's development during a certain period of time.

Portfolios are a collection of pieces of work that tell a story about a child's progress or achievement in given areas.

Observation

Observations involve collecting information on a child by taking an outsider's view. As with narrative assessments, which may use observation results, observational tools do not affect children's activities and thus do not put additional burdens on them. However, ECEC staff must invest a significant amount of time in completing the forms of the observation tool.

Rating scales can be used to code observations. These scales comprise a set of categories designed to gather information about quantitative or qualitative attributes.

Checklists may include a list of tasks, skills and abilities to monitor or assess children's development or knowledge, such as "the child can count to 5" or "the child is able to play independently". However, unlike a rating scale, checklists only indicate whether a child is able to complete a certain task or has a certain skill, so the results of a checklist are often less specific and detailed.

The aspects of child development covered by monitoring or assessment methods can include:

- Language and literacy skills

- Numeracy skills

- Social-emotional skills

- Motor skills

- Autonomy

- Creative skills

- Practical skills

- Health development

- Well-being (subjective well-being)

- Science skills

- ICT skills - capacity to use digital tools (e.g. computers, tablets, internet).

According to the OECD (2015b) Starting Strong IV report, the monitoring of child development through observations and narrative assessments is more common and comprehensive than direct assessments. The most prevalent areas for observations are language and literacy skills, social-emotional skills and motor skills (each carried out in 17 of 21 countries). Monitoring numeracy skills (16), autonomy (15) and creative skills (14) are also common, but monitoring ICT skills (5) is rare.

The key agents of monitoring and assessment are ECEC staff. However, other actors are also involved for the implementation of more formalised instruments. Monitoring or assessing child development, well-being and learning is mostly internal and often linked to staff practices, with an important role also played by external agencies. Direct assessments tend to cover a narrower set of domains than observations and narrative assessments in many jurisdictions. More than half of the surveyed jurisdictions apply direct assessments that often focus on skills such as language and literacy, health development, social-emotional and motor skills (OECD, 2015b).

Analytical potential and indicators

Within theme analyses

The recent debates on the potential "schoolification" of ECEC pedagogy warrants further investigation into the within and between-country heterogeneity of the monitoring and assessment practices of ECEC staff. This could provide further evidence on whether cultural differences play a role in different approaches toward the role of ECEC settings in preparing children for school.

Cross-theme analyses

It is presumed that staff beliefs about child assessment and monitoring are reflected in staff behaviour. The evidence on staff behaviour indicates some possible benefits associated with child assessment or monitoring. Yoshikawa et al. (2013) argue that most successful curricula are characterised by integrated professional development and the assessment or monitoring of child progress. Measures of child assessment and monitoring provide the opportunity to address research issues such as:

- Monitoring or assessment methods as a function of setting type and age of children.

- Monitoring or assessment in relation to professional development, initial training, culture and ideological beliefs.

- Indicators of the presence and type of child monitoring or assessment could be analysed for links with aspects of process quality, pedagogical practices or child development, well-being and learning.

- Beliefs of ECEC staff regarding assessment, including how prepared they are to do assessments.

The main indicators on the monitoring and assessment of children's development, well-being and learning are:

- Content of pre-service education regarding assessment and monitoring.

- Content of professional development and need for further development regarding assessment and monitoring.

- Self-efficacy regarding the assessment and monitoring of children.

- Time spent on the assessment and monitoring of children.

- Staff engagement in collaborative professional practices related to the assessment and monitoring of children.

Themes mainly concerned with ECEC centre characteristics

Structural quality characteristics

Introduction

Structural quality characteristics include the group/class size, and staff-child ratio, in addition to the qualifications of the staff and composition of the child group, also covered elsewhere in this document. Limiting the number of children supervised by adults and the size of groups are logical concerns for basic safety and supervision considerations, as well as for meaningful staff-child interactions. In many countries, regulations prescribe the maximum number of children supervised as a group, and most often this varies according to age, with the group size for younger children smaller than for older children. Notably, relevant for all studies of child outcomes as a function of these characteristics, it is difficult to isolate the effects of, for instance, group size from other effects such as staff qualifications and staff-child ratios (OECD, 2010).

Theoretical background

Features related to group size and staff-child ratio are cited as consistent predictors of playroom/classroom quality and child development outcomes in various OECD countries, although the effect sizes are often small and inconsistent (Barros and Aguiar, 2010, Burchinal et al., 2008a, Morrissey, 2010, OECD, 2006, Sabol et al., 2013). Many researchers consider indicators of structural quality to be a distal predictor of child outcomes that are primarily mediated by the process quality of staff-child interactions (e.g. NICHD Early Child Care Research Network, 2002a, Slot et al., 2015b) (discussed more in detail above). Specifically, smaller group sizes and higher staff-child ratios are thought to enable staff to have higher quality interactions with each child, a better knowledge of the child's needs, and facilitate interactions and activities more tailored for each child's needs (Bowne et al., 2017).

Process quality of staff-child interaction has been found to be higher in settings where the group size was of the recommended size or below (Burchinal et al., 2002, Huntsman, 2008, NICHD Early Child Care Research Network, 2000), as ECEC staff acted in a more caring way and stimulated action and thinking more often. Conversely, where group sizes were large in relation to recommendations, process quality was poorer (Burchinal et al., 2000). In secondary analyses of five European datasets (from England, the Netherlands, Finland, Portugal and Germany), Slot et al. (2015a) found further evidence that group size and staff-child ratio were related to higher levels of observed process quality. However, these analyses suggested that the association between such structural quality features and process quality is not straightforward. For instance, in Finland, group size was associated with the organisation of the ECEC centre: in preschools located in school settings, larger groups were associated with higher process quality, whereas the opposite was true in day-care centres.

The relationship between group size, staff-child ratios and child outcomes is complex. A recent meta-analysis of US studies of preschool children found non-linear associations between staff-child ratios and child scores in cognitive and achievement tests (Bowne et al., 2017). In Mexico, children in preschools with higher staff-child ratios scored higher in cognitive development tests than those in preschools with lower staff-child ratios. Schools with higher ratios also had better trained teachers and more advanced management and multiple playrooms/classrooms (Myers, 2004). On the other hand, ECEC staff in Mexico who worked in preschools where the staff-child ratio had increased to 1:30 indicated that they were unable to provide individualised attention to the children (Yoshikawa et al., 2007). Associations with child outcomes may not be generalisable across countries, and group size was not related to any improvement in language and cognitive performance in the 10-country IEA Pre-primary Project (Montie et al., 2006).

Much of the research on staff-child ratios has been conducted for preschool children aged between 3 and 5 years-old. The impact of lower staff-child ratios and smaller group sizes in the younger population appears stronger than for the preschool population (NICHD Early Child Care Research Network, 2000). Small group sizes - even when controlling for staff-child ratios - are associated with overall better care-giving, suggesting that small groups are more effective pedagogical environments, particularly for younger children (Vandell and Wolfe, 2000), though the relationship between staff-child ratios and the quality of staff-child interactions is less clear in family day-care settings (OECD, 2018).

High levels of staff turnover is a potential barrier to providing high quality care (Manlove and Guzell, 1997), and is associated with lower levels of process quality, including poorer quality of staff-child interactions (Phillips et al., 2000). Staff turnover has also been

associated with poorer child outcomes across domains (e.g. Howes and Hamilton, 1992). Moreover, staff turnover also increases the likelihood of the remaining staff leaving (Whitebook and Sakai, 2003). In sum, high levels of staff turnover may have complex effects on ECEC quality, affecting process quality, children's development, learning and well-being, and the staff remaining in the centre (Cassidy et al., 2011).

Analytical potential and indicators

Within theme analyses

Given the evidence relating group size and staff-child ratio to process quality and child development outcomes (e.g. Barros and Aguiar, 2010, Morrissey, 2010, OECD, 2006, Sabol et al., 2013, Burchinal et al., 2008a), the TALIS Starting Strong Survey 2018 provides an important opportunity to explore the indicators concerning centre enrolment, number of staff and staff shortages and attrition across participating countries.

Cross-theme analyses

In addition, although the TALIS Starting Strong Survey 2018 does not directly assess child development, well-being and learning, it will be important to examine the associations between centre and staff size, and reported pedagogical practices and process quality indicators.

The TALIS Starting Strong Survey 2018 includes measures of multiple structural quality characteristics:

- centre total enrolment and capacity

- composition of children in the target group

- composition and role of staff in the target group

- centre staff human resources

- shortage of resources including staff, ICT, material and physical space

- staff attrition and turnover

- centre funding and budget constraints

- centre location and environment of the neighbourhood.

These indicators are relevant both as dependent and independent variables in analyses. While analyses including structural quality characteristics as an independent variable are discussed under other headings in this document, relevant analyses of these characteristics as a dependent variable are related to within and between-country heterogeneity of structural quality characteristics, associations between staff levels of education and structural characteristics (e.g. do better educated staff work in centres with smaller groups and lower child-staff ratio?), and equity in structural quality characteristics (e.g. do certain demographic groups of children tend to experience less favourable environments?). Moreover, as staff turnover is a concern in many countries, understanding its associations to an array of work-related factors (including professional development, well-being, and resources) will be highly relevant.

Pedagogical and administrative leadership

Introduction

The TALIS Starting Strong Survey considers the ECEC centre leader to be the person with the most responsibility for the administrative, managerial and/or pedagogical leadership at the ECEC centre. The leader plays a crucial role as leadership is important in various services (education, health, and community services) and domains (curriculum, pedagogy, in-service training of staff, and teamwork) across ECEC that require the successful integration of services and inclusive practices. The facilitation of effective teamwork is a crucial factor in the quality of services provided for children. Poor leadership can undermine teamwork by creating competition, resentment and lack of respect among staff, and is potentially detrimental to the atmosphere in a centre and the children's well-being. Leadership is therefore key to organisational learning, knowledge development and motivation among staff, and to creating a stimulating learning and well-being environment that supports positive development in children's early years (Vannebo and Gotvassli, 2014).

Theoretical background

Effective leadership is often identified as a contributing factor to quality in ECEC settings (Bloom and Bella, 2005, Gray, 2004, Kagan and Bowman, 1997, Rodd, 2006). The Effective Leadership in Early Years (ELEY) study revealed that effective ECEC leadership positively affects children's educational, health, and social achievements, as well as their well-being (Siraj-Blatchford and Manni, 2007).

In ECEC, particularly in private or commercial organisations, ECEC centre leaders are often in charge of administrative (as well as financial and general managerial) tasks alongside pedagogical tasks. Given the multi-faceted nature of educational leadership, it has been defined as "informed actions that influence continuous improvement of learning and teaching" (Robertson, 2008). Specifically, there is a growing consensus that the most important role the leader plays is to promote the improvement of teaching and learning, known as "pedagogical leadership" (Siraj and Hallet, 2013).

Pedagogical leadership is focussed on the need to develop skills in leading organisational change in early childhood settings (Andrews, 2009) . Ideally, pedagogical leadership should form a bridge between research and practice through disseminating new information and shaping agendas (Kagan and Hallmark, 2001). This approach to leadership is based on a passion for learning, and is different from instructional leadership, which relates to the transmission of knowledge rather than to the construction, co-construction, or creation of knowledge (Siraj and Hallet, 2013). Among other capabilities, the leaders' ability to reason, problem solve, evaluate, give constructive feedback, learn from and with others, are important for their pedagogical leadership (Hallet, 2012).

A study in Finland indicated four dimensions that influence the success of pedagogical leadership: 1) context; 2) organisational culture; 3) leader's professionalism; and 4) management of substance (Fonsén, 2013). Based on these dimensions, four types of pedagogical leadership resource were found from analysis of directors' narratives: 1) adequate resources (enough personnel, time to work, not too large responsibility areas); 2) personnel management skills; 3) pedagogical management skills (including the knowledge of pedagogy, knowledge of recent research findings in the ECEC sector); and 4) confidence in organisation's senior staff level (including their supervisors, other management, and administration).

Besides offering pedagogical leadership, ECEC centre leaders also take on the important role of managerial and organisational leadership, referred to under the umbrella of administrative leadership. With managerial leadership, leaders' perceptions of challenges in funding and resource management are important for improving ECEC quality. The quality and pedagogy of ECEC may be affected by what resources are spent on, such as the professional development of staff, the hiring of staff, buildings and equipment, and salaries (Wall et al., 2015). However, some studies found that centre leaders felt least well-prepared for administrative roles, such as financial management, and that they felt better prepared for roles as ECEC educators and building relationships with staff (Hayden, 1997, Muijs et al., 2004). In relation to organisational leadership, an important role for leaders is to consider rapidly increasing diversity. A leader's role may include empowering staff to work without prejudice with other staff members, parents, and children from different linguistic or cultural backgrounds. Evidence suggests that any prejudice held by ECEC staff can be perceived by children, thereby negatively impacting children's expectations of their achievement capacities (Kuklinski and Weinstein, 2001). The leaders' role could be to shift to a multicultural/linguistic approach (i.e. an anti-bias learning and well-being environment) by fostering respectful relationships among staff, adopting a collaborative style of leadership, setting clear non-negotiable values, and managing conflicts strategically (Derman-Sparks et al., 2015).

Distributed leadership is a relatively recent way of realising leadership. The traditional leadership model is hierarchical, with a charismatic, authoritative leader who manages, plans, and directs everything, with other staff following (Rodd, 2013). However, the model has gradually shifted to a distributed and collaborative style in more countries (Starratt, 2003, Spillane, 2005, Duffy and Marshall, 2007, Fitzgerald and Gunter, 2008, McDowall Clark and Murray, 2012, Rodd, 2013). This model of ECEC leadership recognises that leadership can come from anywhere within the organisation (Raelin, 2003), making the organisation a leaderful team. Features of distributed leadership are: 1) leadership typically involves multiple leaders, including those without formal leadership positions; 2) leadership practice is not something done to followers, i.e., followers, leaders and situations are the constituting elements of leadership practice; and 3) interaction among individuals is the key factor of leadership practice, not only the actions of individuals (Spillane, 2005). As defined by McDowall Clark and Murray (2012), this style of leadership is "non-hierarchical, flexible and responsive, enabling leadership to emerge at any level of the organisation wherever the appropriate knowledge and expertise or initiative occurs and with the ability to identify and act on challenges and opportunities" (p.12). Recent research suggests that pedagogical leadership is ineffective when a traditional leader works alone, highlighting the importance of implementing distributed leadership (Heikka and Waniganayake, 2011, Heikka et al., 2013, Heikka, 2014).

The profile of centre leaders (in terms of their education, experience, training, and professional development) is important when discussing effective leadership (see also theme 7: background and initial preparation). Since the quality of ECEC services is strongly related to their leaders' level of education and development, attracting well-trained centre leaders is a key challenge in fostering quality in ECEC (OECD, 2012c). There is a growing demand for strong leadership given the need for increased accountability, heightened financial constraints, and greater competition in the ECEC sector (Muijs et al., 2004). Good management practices are also important for increasing staff satisfaction and the quality of ECEC provision (Aubrey et al., 2013). Leaders often take up leadership roles without specific training (Aubrey, 2011), but in nearly half of European Union countries, ECEC leaders must now have specific training in addition to their professional ECEC

experience. The duration, content, and training modules vary, but they can include leadership, decision making, administrative, financial, and team management training components (European Commission et al., 2014). Fostering aspiring leaders is also important, and Rodd (2013) points out that formal leaders who do not allow others to aspire to leadership, or who choose to embrace their own leadership, are failing in their responsibility to build leadership capacity and plan for succession. It is thus essential that leadership is regarded as being distributed throughout the organisation.

The evaluation of staff practice is another important facet of leadership to improve ECEC quality. Evaluation practices can be either internal or external. Internal evaluation is carried out by staff themselves, and external evaluation is implemented through an agency or peers from outside the centre. In the case of underperforming services and settings, appropriate measures are taken for accountability and for protecting the child. Most countries report that they take measures to address shortcomings (rather than give credits), such as follow-up inspections, closure of services, and obligation of management/staff to take training (OECD, 2015b).

Many studies show that leadership is one of the key components of high-quality ECEC (Muijs et al., 2004). Quality in the provision of ECEC services is closely related to the administration function of the ECEC centre, and leaders are key figures in this function (Hayden, 1997). A study in the United States showed that supervisor relations greatly influenced ECEC staff motivation for professional growth (Wagner and French, 2010). When leaders of ECEC centres provide favourable working conditions for their staff, it results in better care and education (OECD, 2012c). On the other hand, when ECEC staff receive low professional support in relation to centre support, opportunities for professional development, and regular staff meetings with the management of the centre, their job satisfaction is lower, and their teaching and care-giving performance is also lower than that of staff who are professionally supported (OECD, 2012c).

Leaders play a vital role in ECEC centres. However, many ECEC staff are unwilling to take on leadership roles for various reasons (Rodd, 2006), including poor working conditions, low pay, low status, lack of understanding of employment rights and the stressful and physically demanding nature of the work itself. Understanding the working conditions of centre leaders can contribute to improving the quality of ECEC (OECD, 2012c).

Analytical potential and indicators

Within theme analyses

The relationship between distributed leadership (e.g. McDowall Clark and Murray, 2012), and administrative leadership and pedagogical leadership (e.g. Heikka, 2014) may be examined through the survey. In particular, it is possible to explore the relationship between leaders' beliefs and reported leadership practices. Furthermore, given the gradual shift between traditional leadership to a model of distributed leadership (Raelin, 2003, Rodd, 2013), the TALIS Starting Strong Survey 2018 provides the opportunity to explore leadership roles and styles across participating countries.

Cross-theme analyses

The above literature suggests that effective leadership is likely to be crucial for quality ECEC (e.g. Rodd, 2006). The TALIS Starting Strong Survey 2018 has the potential to explore whether either or both pedagogical and administrative (Wall et al., 2015, Andrews, 2009) leadership are associated with higher structural quality (e.g. working conditions)

and/or process quality in ECEC (see the introduction of Section II in this document for a discussion of process quality). Furthermore, central to process quality is the distributed leadership model. In this model, a leading team (Raelin, 2003) with a sense of ownership and responsibility is created (Siraj and Hallet, 2013). In addition, it is suggested that there are associations between leadership and the leaders' characteristics (e.g. their education, experience, training, and professional development) and their abilities (e.g. management of working condition, resource management, interaction with their followers, giving appraisal and feedback etc.).

The following is a summary of the indicators and dimensions concerned with pedagogical and administrative leadership:

- appraisal and feedback
- beliefs about leader and pedagogical leadership
- budget constraints
- centre evaluation
- centre staff resources
- distributed leadership
- distribution of tasks
- pedagogical leadership
- regulations constraints
- resources for professional development
- staff shortages
- time spent on pedagogical and administrative leadership.

Climate

Introduction

Research findings suggest that an ECEC centre's organisational climate and playroom/classroom climate are key factors of quality ECEC (Siraj and Hallet, 2013). Evidence from the Researching Effective Pedagogy in Early Years (REPEY) study in England suggests that effective practice needs an appropriate working climate, assessment, management, staff development and support for staff work, as well as pedagogical understanding about playroom/classroom activities (OECD, 2010). These factors are also thought to be related to effective leadership, especially that which promotes a team culture in which all members are valued and respected within a climate of trust (Jones and Pound, 2008).

This section focusses on a particular aspect of climate, namely working conditions. Working conditions refer to a set of structural characteristics that can influence the motivation and satisfaction of ECEC staff with their chosen profession. Good or poor working conditions impact on ECEC staff in different ways and may directly or indirectly affect children's development, well-being and learning.

Theoretical background

Bennett et al. (2003) found that "teams operate best in an open climate, with both intra-group and inter-group relations based on mutual trust and open communication in a supportive organizational climate" (p. 9). Centre climate comprises both playroom/classroom climate and organisational climate, which can be captured through both the process and the structural elements of ECEC quality. Playroom/classroom climate particularly reflects the daily interaction between staff and among children, while organisational climate is also largely influenced by working conditions, such as workloads, working hours, salary, and how staff and children's time is spent. These are addressed as key indicators for improving ECEC (OECD, 2017a).

In some studies, organisational climate, i.e. team collaboration and cohesion, were positively correlated with higher staff-child interaction quality (Bloom and Bella, 2005, Sylva et al., 2004b). Furthermore, the relationship between organisational climate and quality was stronger than that of staff-child ratio and quality in a number of studies (see for instance, studies reviewed in (OECD, 2018)). The impact of organisational climate on both process quality and child outcome needs to be studied further.

The climate of the playroom/classroom and ECEC centre can be conceptualised as the emotional climate. Emotional climate (Howes, 2000, Raver, 2004, Raver et al., 2007) is an important feature of quality that may influence children's development, well-being and learning. For example, a negative playroom/classroom climate tends to affect children's social outcomes (Howes, 2000, NICHD Early Child Care Research Network, 2003, Hughes and Kwok, 2007, Ponitz et al., 2009, Howes et al., 2011).

In contrast, working conditions refer to a set of structural characteristics that can influence the motivation and satisfaction of ECEC staff with their chosen profession. These elements include workload and working hours, salary, contract type, career progression, and management characteristics. Better working conditions, such as competitive salaries and good working hours, help retain effective ECEC staff, as well as attract young people to the workforce, which indirectly lead to better process quality of staff-child interaction in some countries (Fenech et al., 2006, Huntsman, 2008, Moon and Burbank, 2004b). On the other hand, poor working conditions and poor compensation can lead to high turnover rates in the sector, which disrupts continuity of care, professional development efforts, harms overall quality and negatively affects child outcomes (Siraj-Blatchford et al., 2002, Elliott, 2006). Retention and contract type/employment status are also expected to be determinants of quality in ECEC provision - although a recent study in Ecuador found that contract status did not predict quality in kindergarten classes (Araujo et al., 2016).

ECEC staff working hours and how working time is spent is another important component of quality. High frequency observations of ECEC environments can provide rich detail of how ECEC staff and children spend their time.[23] Time use surveys help establish how ECEC staff spend their time on work-related activities in and out of the ECEC environment. Typical categories for time allocations in pre-primary education in OECD countries include: activities with children, individual planning for preparing activities, teamwork and dialogue with colleagues, participating in ECEC management, general administrative communication and paperwork, communicating with parents, engaging in extracurricular activities, and professional development activities. Research investigating pre-primary

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[23] A time use survey may, for instance, examine 10-second interval observations that define a unique activity every 10 seconds, coded according to a predetermined list of social and academic activities.

teachers and carers' time use is relatively nascent (de Haan et al., 2014), especially in comparison to research investigating the time use of primary and secondary school teachers (TNS BMRB, 2014).

Comparable data on overall working time and time use has recently been collected by some organisations. For example, the International Labour Organization collected reports on contact time and overall time. The overall distribution of time and contact time in six OECD countries indicated that hours for ECEC staff were relatively long compared to hours for primary school teachers (ILO, 2012). Contact hours were also long, leaving little additional time for preparation, professional development, consultation with parents, or other supporting activities (ILO, 2012). An OECD survey across 19 countries reported similar results, with 11 countries reporting that most pre-primary teachers have less working time than primary school teachers for non-teaching tasks or tasks other than being in contact with children (OECD, 2017b). On the other hand, six countries in the same study reported that they already ensure the same time for teaching and non-teaching tasks for both pre-primary teachers and primary teachers, a trend that might become more prevalent in other countries (OECD, 2017b).

Analytical potential and indicators

Within theme analyses

Given the lack of evidence on ECEC staff working climate, and working conditions in particular, the TALIS Starting Strong Survey 2018 provides a key opportunity to supplement the data collected already by international organisations such as (OECD, 2017b) and the International Labour Organization (ILO, 2012). Furthermore the data collected in the survey will allow for an examination of the relationship between different indicators of climate and working conditions (e.g. working hours and stress, centre climate and staff engagement). The potential of such cross-national comparisons and analysis would be to highlight any policy needs to improve the working environment for ECEC staff, and potentially feed into raising the quality of ECEC in each country.

Cross- theme analyses

The existing research on climate presented in this conceptual framework, suggests that there is a relationship between climate/working conditions, job satisfaction/motivation and process quality of staff-child interactions (Huntsman, 2008). Since playroom/classroom climate reflects staff-child and child-child interactions, and organisational climate is largely influenced by working conditions, it is important to explore the relationship between both playroom/classroom and organisational climate/working conditions and various aspects of structural/process quality mentioned in this document. A greater interest in the distributed leadership model (see Pedagogical and administrative leadership) and emphasis on the importance of a shared vision to promote team culture makes it necessary to investigate how pedagogical and administrative leadership may be linked to better climate/working conditions, and to see whether distributed leadership affects climate/working conditions.

The indicators and dimensions concerned with ECEC centre climate can be summarised as follows.

- climate for staff learning

- distributed leadership

- number of working hours

- shared culture

- staff engagement in centre

- time spent on tasks related to upkeep of the ECEC centre (e.g. cleaning)

- sources of work stress

- staff beliefs about spending priorities.

Stakeholder relations

Introduction

ECEC learning and well-being environments do not operate in isolation, but instead often work with various stakeholders to enhance children's development, well-being and learning. For instance, ECEC environments may try to involve and empower parents or guardians as caregivers and educators of their children, which may require collaboration with other stakeholders such as family support, social work and health services. Several examples of effective ECEC services that promote parental engagement (e.g. Early Headstart, the Perry Preschool and the Chicago Parent Centers from the United States) offer evidence that parental engagement matters (Bennett, 2008). Support to parents or guardians through the ECEC centre and other community resources can indirectly influence children's development (Litjens and Taguma, 2010). Although many countries face challenges in promoting co-operation across different services for children and their families, it is important for holistic and continuous child development. Especially in circumstances where children are being abused or are receiving insufficient health care, ECEC centres are expected to collaborate with wider social services (Barnett and Masse, 2007, Temple and Reynolds, 2007). Encouraging co-operation between ECEC and primary schools for a smooth transition also remains a policy challenge in many countries. Transitions generally serve as a stimulus to children, but they can be sources of regression and failure if handled without care (OECD, 2006). However, the transition between ECEC and primary school can be facilitated by the collaboration of stakeholders such as boards of education, government offices, psychologists, training colleges, community representatives, and parents/guardians (OECD, 2017b). The optimal development of all children may be enhanced by collaborative effort not only within the ECEC centre itself, but also with various stakeholders.

Theoretical background

Research shows that a strong connection between parents, communities, and the ECEC centre can improve the academic and behavioural outcomes of economically disadvantaged children by reducing the negative effects of deprivation (Weiss et al., 2008). A comprehensive and integrated system of formal ECEC services and community helps disadvantaged families cope with specific poverty-related problems (OECD, 2012a, Van Tuijl and Leseman, 2013, Weiss et al., 2008).

The OECD (OECD, 2012a) reviewed the impacts of particular types of parental involvement on children, with most findings showing that parents can indirectly influence child development, well-being and learning. The Effective Provision of Pre-School Education (EPPE) study highlighted the importance of strong parental involvement for child outcomes (Siraj-Blatchford et al., 2004). ECEC centres that had the same educational aims as parents, and that provided regular reporting and facilitated discussion with parents about child progress, saw good socio-cognitive outcomes for children (Siraj-Blatchford et al., 2004).

Epstein (2001) has found that parents who are involved in their children's early education and care show increased self-confidence in their childrearing and a more thorough knowledge of child development. Research has also found that parental involvement in children's early education enhances parents' understanding of appropriate educational practices and improves children's literacy outcomes (Cooter et al., 1999, Bryant et al., 2000).

Ensuring a smooth transition for children to primary schools is an important task for ECEC centres and primary schools. If these transitions are not well-prepared, or if continuity in quality is not ensured in primary education, there is a risk that the positive impacts of ECEC can decrease or even disappear during the first years in primary school (Magnuson et al., 2007, Woodhead, 1988, OECD, 2017b). Peters (2010) concludes from a literature review that orientation programmes help children become familiar with the school, whereas transition programmes take a much broader focus and should be planned and evaluated by all involved. Research shows that patterns of behaviour and achievement established during the transition period can influence the trajectories of future academic and social success (Dockett and Perry, 2004). When ECEC centres and schools work together, they are better able to provide consistent and continuous education for children and create programmes that build on shared knowledge, needs, capabilities, experiences and skills base (Pianta and Kraft-Sayre, 2003). Case studies on several programmes in key US states and several countries around the world have highlighted the importance of developing a cohesive system of services that supports smooth early childhood transitions to ensure positive outcomes for all young children (Kagan and Tarrant, 2010).

Analytical potential and indicators

Within theme analyses

The literature reviewed above shows that the co-operation of ECEC centres across different services for children and their families is important for the holistic and continuous development of children. The TALIS Starting Strong Survey 2018 has the potential to explore within and between-country heterogeneity of co-operation of ECEC centres with other stakeholders (e.g. parents or guardians/social services/community/primary schools).

Cross-theme analyses

In addition to the exploration of ECEC stakeholder relations, the TALIS Starting Strong Survey 2018 also has the potential to explore the association between stakeholder relations (e.g. parental engagement, outreach to other stakeholders, transition to primary schools) and ECEC centre characteristics (e.g. centre climate, administrative/pedagogical leadership). Assessing stakeholder relations provides the basis for understanding how the co-operation of ECEC centres with other stakeholders is linked to ECEC centre characteristics.

The indicators and dimensions of stakeholder relations can be summarised as follows:

- parent or guardian engagement

- relationships with other stakeholders (e.g. parents or guardians, social services, schools, community centres)

- outreach to other stakeholders (e.g. parents or guardians, social services, community centres)

- transition to other education levels or primary school.

Themes mainly concerned with ECEC leader and staff characteristics

ECEC staff are key to children's experiences at ECEC centres, as they are responsible for children's care, nurturing and developmental experience. Staff knowledge of age-appropriate learning and development needs, ECEC curricula and their ability to effectively implement this knowledge through activities to support children are at the core of high-quality ECEC staff. ECEC staff training and education before working (pre-service) and while working (in-service or professional development) establishes the knowledge base expected of pedagogical staff to provide a strong learning and well-being environment for the child, which ultimately should support child development, well-being and learning. However, studies show mixed results regarding the effectiveness of pre-service and in-service education and training on child development and learning due to the variety of programmes that ECEC staff attend.

Background and initial preparation

Introduction

There is inconclusive evidence regarding how effectively pre-service education and training impacts education quality or child development, well-being and learning. While many studies find that pre-service qualifications are positively associated with the quality of staff-child interactions in ECEC settings, the evidence is less equivocal for family day-care settings (OECD, 2018). The TALIS Starting Strong Survey 2018 should help create clarifying evidence on what kind of initial education can teach ECEC staff the skillset and knowledge needed to work with young children.

In addition to collecting data on pre-service education and training, the TALIS Starting Strong Survey 2018 follows the procedure of TALIS in collecting key elements about ECEC staff backgrounds. It asks about ECEC staff and leaders' personal attributes (e.g. gender, age, employment status, work experience). This background information is intended to reveal the basic characteristics expected to be of interest in terms of their relationship to other indicators, and that may also be of value as descriptive information about ECEC centres and systems. These background characteristics may also help in understanding the context in which data about themes and indicators are interpreted.

Theoretical background

There are multiple pathways to ECEC work, although ECEC staff often use the pre-service education route. The structure, content and emphasis of pre-service education vary greatly across and within countries (OECD, 2012a). The differences in ECEC training programmes are even larger than in pre-service education for primary teachers, as regulations might be more flexible at the ECEC level (Pardo and Adlerstein, 2016).

1. Characteristics of pre-service education and training (level and length/duration)

The characteristics of pre-service education and training (e.g. level, length/duration) varies by country and by staff category in all countries (Pardo and Adlerstein, 2016, OECD, 2012a, Bertram et al., 2016). Training ranges from a part-time one-year programme held at a secondary education institution to a four-year full-time programme held at university (OECD, 2012a). Evidence shows that ECEC staff training programme duration and formal levels may have different outcomes on teaching quality and children outcomes. The evidence on linkages to children's early outcomes is mixed: while Early et al. (2007) reported that there were no clear patterns of association between ECEC staff education or university major and children's cognitive outcomes at age 4, Dunn (1984) found that Danish children in playroom/classrooms with staff who had a degree from a tertiary education institution had higher test scores at 9th grade than children who were in classrooms with ECEC staff with lower degrees. ECEC staff education level has also been positively related to staff ratings of children's language and literacy skills (Dotterer et al., 2013) and higher quality staff-child interactions (OECD, 2018). The overall evidence is consistent with the trend to professionalise the ECEC workforce. For example, countries such as Brazil and Chile are abolishing training programmes at the secondary level (Pardo and Adlerstein, 2016).

The IEA Pre-Primary Project, a 10-country study of preschools, showed that the duration of pre-service education was strongly associated with children's higher language scores at age 7 (Montie et al., 2006). ECEC staff with a four-year university degree score higher on playroom/classroom environment according to the ECERS-R (Early et al., 2007).[24] The National Child Care Staffing Study (NCCSS) (Howes et al., 1992) also found that ECEC staff with a four-year degree were more sensitive than ECEC staff with two or less years of training. Children with more sensitive and responsive educators had better language outcomes and engaged in higher levels of peer play (Melhuish et al., 1990, Howes et al., 1992).

Although many countries have established national standards of required competencies, the actual share of ECEC staff trained to these standards varies. Monitoring in this area is poor in many countries (UNESCO, 2015), and in some countries the pressure of enrolment surges (e.g. with the introduction of compulsory education) has lowered training and hiring standards. Formal or informal policies supporting the recruitment of staff from ethnic minorities or other disadvantaged groups are enforced in many countries, but staff often lack the required training to meet national standards (UNESCO, 2015).

2. Pedagogy and content of pre-service education and training

Having further knowledge regarding the characteristics of pre-service education programmes seems of critical importance to understanding their variety and how ECEC staff differ depending on their initial training programme characteristics.

Because of the lack of systematised information regarding the pedagogy, content and mode of delivery of pre-service education and training (e.g. lecture, seminar, workshop, practice, ECEC-specific contents, child development, communication with parents, different set of pedagogies), it is in the interest of countries to collect this information through the TALIS Starting Strong Survey 2018.

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[24] The ECERS-R is the revised Early Childhood Environmental Rating Scale, with sub-scales for space and furnishings, personal care routines, language reasoning, activities, interactions, programme structure, and parents and staff.

STARTING STRONG SURVEY 2018 CONCEPTUAL FRAMEWORK

International evidence supports the importance of ECEC staff with the specific content knowledge relevant for working with young children. High-quality ECEC centres that hired ECEC staff with the knowledge and understanding of child development were found to show better child development outcomes (Naudeau et al., 2011, Siraj-Blatchford et al., 2003). ECEC staff with a four-year college degree and a teaching certificate specialised in early childhood education were more likely to have higher quality learning and well-being environments and provide more activities than ECEC staff with no formal training in early childhood (Sylva et al., 2004a, Pianta et al., 2005). Early childhood development coursework during ECEC staff training is linked to more positive development, well-being and learning in children (e.g. language development, social, and physical outcomes) than years of experience in childcare service or education level (Honig and Hirallal, 1998).

The content of ECEC education courses have not been systematically examined due to the diversity of offerings and pathways to working in ECEC. It is not currently known how coherent ECEC training programmes are in terms of goals, content and teaching practices, although this seems to be of critical importance (Darling-Hammond et al., 2005). There is great variability between countries, but also within countries. In a recent study of 14 Latin American countries, Pardo and Adlerstein (2016) found that only two countries had national guidelines on curriculum for ECEC pre-service programmes.

Relatively little research has focussed on the content and quality of the preparation of ECEC staff's degrees, despite evidence suggesting that specialised training improves the competencies of ECEC staff (Early et al., 2007, Fukkink and Lont, 2007). About 23% of surveyed trained ECEC professionals in the United Kingdom stated that their degree had no content specifically relevant to ECEC, compared to 64% who stated that there was direct relevance. Relevance of training to ECEC was highest among professionals in United Kingdom childcare centres or other local ECEC settings compared to those teaching in schools ("maintained" settings) or in childminding activities (Hadfield and Jopling, 2012).

Considering this evidence, researchers have identified the knowledge base that should be included in pre-service programmes for ECEC staff, such as: child development, curriculum content, pedagogy, disciplinary content (mathematics, language, science, social studies and arts), psychology and play. They also name skills that should be promoted, such as working with families, responding to diversity and working with children with special needs (Pardo and Adlerstein, 2016, Pianta et al., 2012, Rebello Britto et al., 2013).

The TALIS Starting Strong Survey 2018 will explore the contents of ECEC initial and pre-service education and training considering the potential associations they might have with ECEC staff practices.

3. Effectiveness of ECEC pre-service education and training

The effectiveness of ECEC pre-service education and training is the subject of ongoing debate among academics. On one side, researchers have identified higher staff education as a moderate or strong indicator of higher quality ECEC playroom/classroom environments, or higher quality ECEC staff process behaviours, both of which can be linked to improved child outcomes (Early et al., 2007, Fontaine et al., 2006, Phillipsen et al., 1997). Professional, trained ECEC staff have been found to be more likely to engage with children in an age-appropriate manner than non-professional staff in the development of social-emotional skills (e.g. turn-taking, coping, negotiating) and verbal skills (e.g. assertive, conversational phrases) (Katz, 1983, Shonkoff and Phillips, 2000). Having a credential in early childhood education has also been linked to higher overall quality in

ECEC centres (Torquati et al., 2007). In some studies, children showed gains in language and cognition that lasted through to the second year of primary education (Whitebook and Ryan, 2011).

On the other side of the debate, some researchers have found more recent evidence that ECEC staff education is not predictive of improved playroom/classroom quality measures or better child development outcomes (Gialamas et al., 2014), and other researchers argue that pre-service formal ECEC education does not appear to be a sufficient factor or a strong enough marker to guarantee ECEC staff effectiveness or high-quality programmes (Burchinal et al., 2008b).

These mixed results could be explained by evidence suggesting that there is a wide range of programmes. Many are general programmes with no specific ECEC content, in contrast to others that are specialised ECEC training programmes. Programmes also varied in their intensity (full or part time), duration (one to four years), and in terms of the provider and level of education training (secondary level programme to tertiary institutions or university) (Kagan et al., 2008, Pardo and Adlerstein, 2016, OECD, 2012a). Burchinal et al. (2008b) also suggested that the quality of the educators' degree-granting higher education programmes may explain the inconclusive evidence. Due to this diversity, it seems critical for the TALIS Starting Strong Survey 2018 to explore pre-service education and training programme characteristics in order to identify features that could relate to ECEC quality.

4. Background of ECEC leaders and staff

The TALIS Starting Strong Survey 2018 will collect key elements about the background of ECEC staff and leaders. To be able to describe and compare the composition of the ECEC workforce across countries, information about ECEC staff and leader backgrounds in terms of age, gender, employment status and job experience is crucial. The TALIS Starting Strong Survey 2018 will also provide information for analyses of antecedents of children's development, well-being and learning, such as staff self-efficacy or job satisfaction.

Analytical potential and indicators

Within theme analyses

Given the evidence presented in the conceptual framework it would be expected to find great heterogeneity of pre-service education and training programmes for ECEC staff in terms of characteristics (level, provider and length) and content, both between and within countries (Pardo and Adlerstein, 2016, OECD, 2012a, Bertram et al., 2016). It is also expected to find both highly trained staff and staff with little training (UNESCO, 2015).

The information drawn from this section could be triangulated with system level data regarding pre-service programme characteristics and ECEC staff education requirements. The information from the TALIS Starting Strong Survey 2018 will supplement the information provided by governments.

Cross-theme analyses

In addition to the analyses of factors related to pre-service education and training, the conceptual framework suggests possible relationship between ECEC staff pre-service education and practices and programme quality.

The TALIS Starting Strong Survey will be of central importance to understanding the relationship between pre-service education and process quality. Today, there is no consensus. On the one side, it would be expected to find associations between ECEC staff training and process quality (Slot et al., 2015a, Schaack et al., 2017), specifically between: pre-service education level and the process quality of staff-child interactions (Dunn, 1984, Bauchmüller et al., 2014); programme length and quality of learning environment (Early, Maxwell et al., 2007); and specialisation in early childhood education and providing higher quality learning opportunities (Pianta et al., 2005).

On the other hand, inconclusive evidence (Burchinal et al., 2008b, Early et al., 2007, Slot et al., 2015a) also suggests that associations may not be found.

Although there is no consensus regarding the sole impact of pre-service education on the process quality of staff-child interaction, from the evidence presented in the conceptual framework it would be expected to find associations between programme specialisation in early childhood (Siraj-Blatchford et al., 2004, Pianta et al., 2005, Early et al., 2007, Fukkink and Lont, 2007), programme length (Howes et al., 1992, Melhuish et al., 1990) and ECEC staff practices and self-efficacy (Bullock et al., 2015).

The indicators and dimensions of background and initial preparation can be summarised as follows:

- age

- content of pre-service education programme

- characteristics of education and initial preparation programme

- qualifications gained from education and initial preparation programme

- educational attainment

- employment status

- gender

- place of birth background

- work experience.

Professional development

Introduction

A well-trained and knowledgeable workforce is a critical component of a quality ECEC programme (Zaslow and Martinez-Beck, 2006). Professional development can be understood as activities that promote ECEC staff skills and knowledge and advance their effectiveness in working with children while already employed as staff (Neuman and Cunningham, 2009). This in-service training provides ECEC staff with the opportunity to critically reflect upon their teaching practices and develop the capacity to substantially improve the quality of their interactions with children, families, co-workers and communities. It also provides an opportunity to stay abreast of new developments in the field. Overall, studies have shown positive associations between staff professional development and staff-child interactions (OECD, 2018).

More countries are turning to professional development as a resource to help ECEC staff improve their work with young children. It is also a tool to compensate for the lack of knowledge or skills in the case of low qualified staff (OECD, 2018). Professional development activities vary widely, ranging from a one-hour workshop to a year-long course. They also vary in content and format of learning. For example, personalised approaches to professional development through mentoring or coaching may be used. Research from the United States shows that in some settings, professional development seems to be heterogeneous in terms of quality and content, and tends to be episodic and not co-ordinated with the education system (Zaslow et al., 2010).

Countries that participated in the priority rating exercise rated in-service education and training as one of the top priorities to explore in the TALIS Starting Strong Survey 2018 (see Annex B). They were interested in having information that could inform and improve their policies. This concern is consistent with the assessment made by Zaslow and Martinez-Beck (2006), who argued that there are not enough studies on this topic to guide countries that want to improve their professional development systems. There is a lack of evidence on how to promote professional development in order to improve ECEC quality and children's outcomes.

The success of professional development depends both on the supply of effective professional development programmes and on participants' motivation and disposition to learn and apply new knowledge and skills. In this regard, it is crucial that professional development responds to ECEC staff needs. It is also necessary for some conditions - time and resources – to occur in order to allow staff to participate in professional development activities and apply and review their learning. The TALIS Starting Strong Survey 2018 will identify professional development needs and incentives and barriers to participating in professional development activities for staff. This information will allow countries to prepare a favourable context where effective professional development can take place.

Theoretical background

There is an increasing focus across countries on ECEC staff professional development as it is understood that the knowledge, skills, and practices of ECEC staff are key factors in determining a child's development (Sheridan et al., 2009). A wide range of professional development opportunities exists for ECEC staff, from academic courses with degrees or credentials to mentoring or communities of practice (Buysse et al., 2009, Fuligni et al., 2009). ECEC centres may also run formal or informal induction activities for new staff. In recent years, a variety of approaches, including technical assistance, coaching, consultation, mentoring and communities of practice, have become more prominent.

In some OECD member countries, participation in continuous professional development has recently become a system requirement to improve the ECEC workforce quality, although it may be optional for ECEC staff working with younger children or for assistant-level ECEC staff. For instance, in Poland and Slovenia, continuous professional development is required for career advancement and salary increases (European Commission, 2014). In-service training is a minimum of 56 hours per year in Portugal, 5 days a year in Norway, and 2 days in Denmark (ILO, 2012).

There are diverse findings regarding professional development characteristics and their effects on the process quality of staff-child interactions. Recent studies suggest that in-service training, in particular training on guided play, collaborative work and appropriate emergent literacy, mathematics and science activities, has larger effects on the emotional and pedagogical interaction with children, while pre-service education and training has a

positive but small effect (Assel et al., 2007, de Haan et al., 2013b, Sylva et al., 2007, Zaslow et al., 2010). Positive impacts have been found for staff in both ECEC and family day-care settings (OECD, 2018). Other studies have found significant links between elements of professional development and ECEC centre quality or child development outcomes, even though it is not always clear how these processes function (Sheridan et al., 2009).

Types and content areas of in-service education and training include: curriculum-focussed, new pedagogy focussed, behaviour and health focussed, and communication with parents. Dalli (2014) found that the mentoring of less experienced staff by more experienced ECEC colleagues can enhance sensitivity to working with infants. A staff mentoring programme can increase playroom/classroom quality and improve ECEC staff-child relationships, especially in terms of sensitivity and discipline appropriateness (Fiene, 2002). On-site mentoring, combined with intensive curricula, showed promising results in improving playroom/classroom quality and child development outcomes (Burchinal et al., 2008a). Good quality mentoring or in-service training can also offset staff lack of experience (Ofsted, 2012). Head Start ECEC staff of a variety of educational backgrounds worked with coaches in the Exceptional Coaching for Early Language and Literacy (ExCELL) programme[25] to learn a variety of specific strategies to develop children's literacy and language skills. Although ECEC staff were not asked about the effectiveness of the training they used, the material learned and improvement among children's vocabulary development was subsequently observed (Wasik, 2010). Recently, Pianta et al. (2014) found that educators who participated in numerous cycles of coaching improved their playroom/classroom interactions in all three Classroom Assessment Scoring System (CLASS) domains in a one-year period.

Opportunities to participate in professional development or in-service training vary among OECD member countries (Bennett et al., 2003, Taguma et al., 2012). Several countries reported that take-up rates for professional development are often low. This may be related to a lack of information about training opportunities, limited time off or coverage of relevant expenses, an unclear articulation of its benefits, and the fact that the continuous training and professional development on offer may not be related to what ECEC staff wish to learn. Furthermore, ECEC managers may be reluctant to allow staff to participate in such training, especially in times of widespread staff shortages (OECD, 2012a).

Reports suggest that it may be important to provide ECEC staff with incentives that could motivate their participation, such as: wage increase, better working conditions, shorter working days/years, or accomplishing additional tasks of interest. It is also important that their schedule is relieved during the training to accommodate for the additional work-related hours (OECD, 2010).

Barriers to staff participation in in-service training include: allocating time within regular working hours, cost, lack of encouragement from ECEC leaders and the ability to disengage from understaffed ECEC centres. Around 30% of trained ECEC professionals in the United Kingdom indicated that they did not have time to participate in continued professional development (Hadfield and Jopling, 2012). Opfer and Pedder (2010) also identified the gaps between programme provision and ECEC staff needs as a significant barrier to their effective learning. The TALIS Starting Strong Survey 2018 will help further investigate incentives and barriers for staff participation in in-service training, as well as incentives and barriers for managers to support their employees' career development.

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[25] ExCELL is a professional development model designed to train teachers to implement language and literacy strategies and practices.

The TALIS Starting Strong Survey 2018 will explore the content, format and characteristics of professional development in order to provide countries with information to inform their policies.

Analytical potential and indicators

Within theme analyses

Given the evidence presented in the conceptual framework, it would be expected to find great heterogeneity of professional development activities and content (Buysse et al., 2009, Fuligni et al., 2009), as well as a concentration of uncoordinated episodic activities (Zaslow et al., 2010). It would also be expected to find the presence of barriers to professional development, such as lack of financial support, lack of availability of substitute staff and a gap between programme provision and ECEC staff needs (Hadfield and Jopling, 2012, Opfer and Pedder, 2010). Finally, differences between countries in the conditions and provision of professional development participation are also anticipated (Taguma et al., 2012, Bennett, 2008).

Cross-theme analyses

The conceptual framework also suggests the possibility of finding associations between professional development characteristics and ECEC staff practices (Assel et al., 2007, de Haan et al., 2013b, Sylva et al., 2007, Zaslow et al., 2010). For example, it would be expected to find associations between participation in mentoring activities and staff emotional support for children (Dalli, 2014, Fiene, 2002). It would also be expected that participation in professional development could offset staff lack of experience in terms of their practices (Ofsted, 2012).

Associations between pre-service programme characteristics and ECEC staff needs for professional development (OECD, 2018, Kagan et al., 2008) would also be expected.

The indicators and dimensions of professional development can be summarised as follows:

- type of induction activity
- participation in professional development activities
- type and content of professional development
- incentives and resources to participate in professional development
- barriers to professional development
- staff needs for further professional development
- staff beliefs about spending priorities.

Well-being

Introduction

Staff and leader well-being plays an important role in the quality of ECEC. Research shows that ECEC staff's psychological state affects the educational experiences they create (La Paro et al., 2009), and that there is a relationship between ECEC staff's positive attitudes and high-level teaching behaviour (de Schipper et al., 2008). (Corr et al., 2014) found that poor mental health (depressive symptoms or low mood) was linked with poor working conditions. The relationship between mental health and care quality was inconclusive, although higher quality care was consistently related to higher ECEC staff mental well-being.

Well-being can influence staff behaviour and attitude and the turnover rate, which in turn affects the overall quality of the ECEC setting. Research shows that emotional exhaustion may cause ECEC staff burnout (McMullen and Krantz, 1988). Reasons for staff attrition in the United States include: inadequate administrative support, low compensation and lack of benefits, and negative perceptions about the work environment (Porter, 2012). In most OECD countries, the retention rate among ECEC staff is generally low, with high turnover rates endemic in the ECEC profession (Huntsman, 2008, Fenech et al., 2006).

In conceptualising cognitive, physical and mental well-being it is important to consider factors that are both internal and external to ECEC staff and leaders. For instance, the perception of the profession's value could be discussed as an internal factor, while job satisfaction with working conditions could be discussed as an external factor.

The TALIS Starting Strong Survey 2018 will explore ECEC staff well-being to provide countries with information to develop their policies. This information would allow countries to stimulate favourable contexts in which ECEC staff can work with young children in a positive manner, reducing turnover rates and improving playroom/classroom quality.

Theoretical background

ECEC staff and leader well-being comprises a number of dimensions, such as satisfaction with perception of the value of the profession, job satisfaction, career aspirations and work stress. ECEC staff well-being is related to the process quality of staff-child interactions.

Satisfaction with ECEC as a profession is related to the social value of the profession, which is complex and based on numerous factors. In TALIS 2008, intrinsic and extrinsic value, and personal and social utility, were found to influence motivations for choosing teaching as a career; as well as social factors, such as the esteem in which the profession is held. The balance of these factors showed some cross-country variation (Watt and Richardson, 2008). In the United States, staff who positively perceive the value of their work in terms of the difference they make in children's lives are more likely to stay in their position and not change professions (Gable and Hunting, 2001). On the other hand, interviews with ECEC staff and recent graduates in Ireland indicated that they do not intend to work in the ECEC field indefinitely, and that they envisioned the possibility of converting to primary school teaching or other employment where they felt their work would be better recognised and valued (Moloney, 2010).

Job satisfaction is linked to aspects of the ECEC centre, such as working conditions, including factors such as work hours, work-life balance and vacation time (Kilgallon et al., 2008, OECD, 2012a). These factors should be seen as distinct from satisfaction with ECEC as a profession. For instance, ECEC staff surveyed in Australia reported that sustaining job satisfaction and motivation was linked to an interest in working with children and positive relationships developed with work colleagues (Kilgallon et al., 2008). Research also suggests that the staff-child ratio in target groups is one of the factors that can impact staff job satisfaction. Lower staff-child ratios, referring to a smaller number of children per staff member, are associated with job satisfaction as they enable staff to provide better quality care (Munton et al., 2002). In addition to the staff-child ratio, (Goelman et al., 2006) note that the number of staff within a playroom/classroom also impacts job satisfaction. When staff work together in a playroom/classroom there are opportunities for supervision, consultation and discussing work challenges, which contributes to job satisfaction with colleagues and the work environment. Moreover, the autonomy in the workplace is one of the factors that has a positive effect on job satisfaction (Child Care Human Resources Sector Council, 2009).

Other factors, such as contract type and wages may also play a role in job satisfaction and, therefore, well-being. Good working conditions have the power to attract and retain highly-qualified and motivated workers, and establishing fair working conditions, such as appropriate pay ("living wage") and supportive work conditions increases the quality of ECEC services, which should improve child development outcomes through the mediation of improved staff-child process interactions (OECD, 2006). Higher wages and better working conditions affect job satisfaction, work motivation and, indirectly, the quality of teaching, caring, and interactions with children (Huntsman, 2008, Moon and Burbank, 2004a). On the other hand, low staff compensation has been linked to low morale, less career commitment and poorer quality teaching (Barnett, 2003). Even within the ECEC sector it has been shown that poor working conditions, such as low wages, long working hours, and length of work year in childcare centres, relative to preschools and kindergartens, deter qualified professionals (Torquati et al., 2007).

High levels of work stress for ECEC staff can lead to job dissatisfaction and poorer performance. A US survey of teachers (including staff at kindergarten level) found that stress levels had increased and job satisfaction had dropped by nearly 25 percentage points during a five-year period (Macia et al., 2013). This context is challenging for ECEC staff to have positive emotions arising from work or endangers their well-being.

The TALIS Starting Strong Survey 2018 explores the areas that affect ECEC staff and leaders' well-being to inform policy on how to enhance quality through improving well-being.

Analytical potential and indicators

Within theme analyses

Based on the research described above, the TALIS Starting Strong Survey 2018 has the potential to further examine the relationship between ECEC staff well-being (e.g. perception of the value of the profession, career aspirations, satisfaction with working conditions) and sources of work stress. It would be also possible to examine the association between satisfaction with ECEC as a profession and perceived social value of the profession. The incorporation of ECEC staff well-being in the TALIS Starting Strong

Survey 2018 also provides opportunities for addressing research questions concerned with the following factors:

- within and between-country heterogeneity of satisfaction with ECEC as a profession

- within and between-country variations of perception of the value of the profession

- satisfaction with working environments and conditions (e.g. group size for pedagogical purpose, composition of staff in target group, satisfaction with autonomy).

Cross-theme analyses

It would be expected that there would be positive correlations between staff well-being (e.g. satisfaction with working environment) and pedagogical practices and process quality in ECEC (de Schipper et al., 2008), as well as associations with administrative/pedagogical leadership (Porter, 2012). On the other hand, it is anticipated that there would be negative correlations with staff attrition and turnover (McMullen and Krantz, 1988).

Indicators and dimensions concerned with ECEC well-being can be summarised as follows.

- career aspirations

- satisfaction with career

- satisfaction with the profession

- perception of the value of the profession

- satisfaction with autonomy, ECEC centre, work environment and working conditions

- sources of work stress.

Professional beliefs about children's development, well-being and learning

Introduction

There is empirical evidence that the beliefs of ECEC staff regarding young children's development, well-being and learning are presumed to influence their actual practices with young children. For instance, ECEC staff beliefs regarding the value of direct instruction with young children are likely to influence the extent to which they use direct instruction. Research with school teachers has shown that their beliefs are related to pedagogical knowledge, instructional practices, and students' learning outcomes (e.g. Blömeke, 2017, Staub and Stern, 2002). It is likely that situational factors, such as the degree of staff independence or management and group sizes, will affect the nature of the relationship between beliefs and practices (König and Rothland, 2013, König and Pflanzl, 2016). Furthermore, the beliefs and practices of ECEC staff may be significantly shaped by their formal education, pre-service education and training, and in-service professional development, as well as the national curriculum (König, 2012). However, it is likely that ECEC staff beliefs are also shaped by their life experiences and the feedback they receive, as has been found with school teachers (Richardson, 1996).

Theoretical background

The beliefs of ECEC staff have been found to be associated with their pedagogical practices (Charlesworth et al., 1991, Pianta et al., 2005, Stipek and Byler, 1997, Stipek et al., 2001). There is empirical evidence that ECEC staff believe in and engage in practices that emphasise children's social and emotional development. Pianta and La Paro (2003) considered findings from standardised observations in over 1 000 ECEC settings, and characterised ECEC settings as socially positive yet instructionally passive. Pianta et al. (2005) also found that even after adjusting for staff experience or training and structural factors, such as staff-child ratio, ECEC staff beliefs about children were the factor most related to observed pedagogical quality. ECEC staff beliefs direct and constrain their pedagogical practices, which subsequently shape children's academic and social environments.

Historically, the field of early childhood education has placed great emphasis on supporting children's social and emotional development, with somewhat less emphasis on academic learning as an outcome of experiences in ECEC settings (Kowalski et al., 2001). Academic subjects have been believed to be less important at this age because young children should investigate and explore their interests so as to develop a love of learning (Lee, 2006, Lin et al., 2003, Piotrkowski et al., 2000). A review of the research (Ginsburg et al., 2008) found that in terms of pedagogical goals for young children, ECEC staff regarded social-emotional development as more important than literacy, which was subsequently more important than numeracy. This finding is supported by a recent survey of ECEC staff in European countries (Moser et al., 2017). However, in the past decade there has been an increased focus on academic learning as a legitimate, desirable, and appropriate outcome of ECEC pedagogy. This challenge to conventional beliefs has encouraged staff in ECEC systems to address academic aspects more substantially.

The beliefs of ECEC staff about young children's development, well-being and learning not only shape practices (Kagan et al., 2008, Stipek et al., 2001), but also act as a filter through which meaning is derived. Thus beliefs can influence, as well as mediate, change and innovation in pedagogical practices. Attempting changes in pedagogy without considering pedagogical beliefs may lead to resistance against a new practice (Lee and Ginsburg, 2007b, Ryan and Grieshaber, 2004). Any effort to change pedagogical practices must consider how staff perceive their role with young children and the purpose of the ECEC setting, as well as staff training and in-service professional development.

The beliefs, priorities and practices of ECEC staff can also be influenced by the characteristics of the children and families with whom they work. For example, socio-economic status (SES) has been found to be related to ECEC staff practices (Lee and Ginsburg, 2007a, Stipek and Byler, 1997). Children from low-SES backgrounds are often behind their more affluent peers in many areas, and awareness of this disparity may influence the beliefs and practices of ECEC staff with children from economically disadvantaged backgrounds. For example, ECEC staff working with low-SES children rate memorising facts and rote tasks (procedural knowledge) as more important pedagogical goals than problem solving and tasks involving reasoning (conceptual knowledge). They also have an orientation to more basic skills than ECEC staff working with middle-SES children (Stipek and Byler, 1997). In another study, ECEC staff working with low-SES children believed that children should engage in mathematics activities in preparation for kindergarten (i.e. the year before formal school), even if they initially showed little or no interest (Lee and Ginsburg, 2007b). Conversely, ECEC staff working with middle-SES children were more likely to state that activities should be child-focussed,

child-initiated and emphasise children's social-emotional development (Lee, 2006, Lee and Ginsburg, 2007b). This finding appeared to be a response to the belief that middle-SES parents provided significant academic input for their children at home (Lee and Ginsburg, 2007b).

Analytical potential and indicators

Within theme analyses

The assessment of professional beliefs is relevant from a policy perspective as it provides information about aspects of instructional quality. The incorporation of ECEC staff professional beliefs in the TALIS Starting Strong Survey 2018 also provides opportunities for exploring cross-country and cultural differences in professional beliefs.

Cross-theme analyses

Information on professional beliefs, in conjunction with information on process quality and related themes (cf. for instance, Pianta et al., 2005), may inform policy makers of needs regarding staff education, training and professional development. Assessing the professional beliefs of ECEC staff about children's development, well-being and learning can be used to address several research questions concerned with:

- The relationship between professional beliefs and staff background (e.g. previous education or professional development).

- The differences between countries in terms of cultural beliefs and patterns of professional training in ECEC.

- Profiles of professional beliefs to foster children's skills for life in the 21st century. This leads to the possibility of linking the concepts of professional beliefs with staff self-efficacy, ECEC centre climate, job satisfaction, and pedagogical practices and process quality.

Indicators and dimensions concerned with professional beliefs about children's development, well-being and learning can be summarised as follows:

- Beliefs about enhancing the development of children's abilities and skills.

- Staff beliefs about spending priorities.

Self-efficacy

Introduction

The concept of self-efficacy was introduced by Bandura (1977), (Bandura, 1997) as "beliefs in one's capacity to organise and execute the courses of action required to produce given attainments" (Bandura, 1997). There has been substantial research about self-efficacy among teachers. Teachers' self-efficacy refers to teachers' beliefs and judgments about their abilities to promote students' learning. Research in many areas has demonstrated the power of efficacy perceptions in learning and motivation. Another perspective on self-efficacy comes from Rotter (1966) concept of the locus of control, which influenced pioneering work by the RAND Corporation on teacher self-efficacy. These studies related teacher self-efficacy to student achievement (Armor, 1976). Similarly further studies conducted by the RAND Corporation indicated that a teacher's belief in his or her ability to positively impact student learning is critical to actual success or failure in a teacher's behaviour (Henson, 2001). As teachers' sense of efficacy may affect teaching and learning,

it would be useful to understand what promotes self-efficacy. However this concept of "educator self-efficacy" has rarely been applied within the context of ECEC. The TALIS Starting Strong Survey 2018 will be the first systematic attempt to document ECEC leader and staff self-efficacy on a large scale.

Theoretical background

(Bandura, 1997) defined self-efficacy as individuals' perceptions of their capabilities to plan and execute specific behaviours. A person's perceptions about what he or she can do rather than beliefs about what he or she will do (Bong and Skaalvik, 2003) affect their goals, actions, and effort (Skaalvik and Skaalvik, 2007). (Bandura, 1997) pointed out that these beliefs are not merely perceptions of external factors and obstacles that might facilitate or inhibit the execution of behaviours, but should be regarded as self-referent as they are first and foremost subjective evaluations of one's own capability, although formed and affected by external factors. Thus, individuals subject to the same environment or context - be it a school, country, or educational system - may have different levels of self-efficacy.

Following this definition, ECEC leader and staff self-efficacy is conceptualised as beliefs regarding the capabilities to enact certain behaviours that may influence, for instance, children's achievement, interest, and motivation (Klassen et al., 2011, Skaalvik and Skaalvik, 2010). The conceptualisation of the construct comprises elements of self-efficacy theory, as well as being informed by research on effective instruction. Tschannen-Moran and Hoy (2001) emphasised that these beliefs are context-specific and connected to instructional capabilities and tasks, and that different beliefs may result from different environments and practices (Klassen et al., 2011, Malinen et al., 2013). Hence differences in self-efficacy may result from differing ECEC environmental contexts.

In a review of research, Jerald (2007) found that some teacher behaviours appeared to be related to their sense of self-efficacy. Teachers with a stronger sense of self-efficacy:

- Tend to exhibit greater levels of planning and organisation.

- Are more open to new ideas and more willing to experiment with new methods to better meet the needs of their students.

- Are more persistent and resilient when things do not go smoothly.

- Are less critical of students when they make errors.

- Are less inclined to refer a difficult student to special education.

Following the studies conducted by the RAND Corporation that developed the concept of self-efficacy, researchers have worked to develop more focussed instruments to measure the concept. Their work has also increased the understanding of self-efficacy. It is now generally thought that two types of belief comprise the construct of self-efficacy. The first, personal efficacy, relates to an educator's own feeling of confidence regarding teaching abilities. The second, often called general teaching efficacy, reflects a general belief about the power of teaching to influence children, including children who may exhibit disruptive behaviour (Hoy, 2000). Researchers have also found that these two constructs are independent. Thus, an individual may have faith generally in the ability of ECEC staff to reach difficult children, while lacking confidence in his or her personal ability. Hence Goddard et al. (2000) suggest that one way for administrators to improve children's development, well-being and learning is by working to raise collective staff self-efficacy.

While there is substantial research on teachers' self-efficacy, comparatively little is known about the self-efficacy beliefs of ECEC staff. One pioneering study in ECEC was by Justice et al. (2008b) using an adapted version of the Teacher Self-Efficacy Scale (Bandura, 1997). They found that ECEC staff reported having generally high self-efficacy. Similar results were found by Guo et al. (2011a) also using the TSES with ECEC staff. Another study by Todd Brown (2005) utilised a different measure, the Teachers' Sense of Efficacy Scale (Tschannen-Moran and Hoy, 2001), and also found that ECEC staff had high and positive efficacy about their capabilities to teach children. However ECEC staff perceptions of their influence on administrative issues, e.g. playroom/classroom size and composition, are low or moderate (Guo et al., 2011b, McGinty et al., 2008). One potential explanation for this finding may be that ECEC staff believe that policy-related decisions, such as class size, are made at the administration level where they have no influence. Taken together, such findings indicate that ECEC staff in the United States seem to be optimistic about their abilities to motivate and engage young children, control disruptive behaviours, and use effective instructional strategies, but regard administrative aspects of the ECEC context, which affect structural quality, as beyond their control.

Further research by Guo and colleagues (Guo et al., 2010, Guo et al., 2012) found that ECEC staff self-efficacy was associated with a positive impact on children's language gains through an association with higher process quality of staff-child interactions. It appeared that interactional quality is a significant moderator of the relations between ECEC staff self-efficacy and children's learning, i.e. ECEC staff with a higher level of self-efficacy were more likely to have increased levels of warm, responsive, and positive interactions with children than teachers with a lower level of self-efficacy. Research has also found that process quality, in particular interactional quality in ECEC, is associated with children's language and literacy skills (e.g. Connor et al., 2005, Sylva et al., 2004a, Mashburn et al., 2008). Thus process quality, in terms of interactional quality, appears to be a likely mediator of the effects of self-efficacy on children's development, well-being and learning.

In recent research Bullock et al. (2015) explored the associations between teaching experience, personality traits, and playroom/classroom management self-efficacy beliefs among ECEC staff in Canada. Results showed a positive association between years of teaching experience and playroom/classroom management self-efficacy. ECEC staff personality also predicted their playroom/classroom management self-efficacy, above and beyond years of teaching experience. Higher extraversion and openness to experience were predictive of greater playroom/classroom management self-efficacy.

Analytical potential and indicators

Within theme analyses

In light of research showing that teacher self-efficacy is likely to be formed of two types of beliefs (Hoy, 2000), the TALIS Starting Strong Survey 2018 provides the opportunity to explore the dimensional structure of self-efficacy among ECEC staff. The availability of self-efficacy indicators also allows exploration of the extent to which ECEC staff and leaders feel capable of performing aspects of their role, as well as differences in ECEC staff and leader self-efficacy across cultures, countries, and educational systems.

Cross-theme analyses

It would be possible to examine how ECEC leader and staff self-efficacy is related to other indicators, such as: pedagogical practices (cf. Guo et al., 2010, Guo et al., 2012); staff initial training; and professional development; and background factors as such age, gender and experience (Bullock et al., 2015). Understanding these associations may provide information on inferences for potential interventions to strengthen ECEC staff and leader self-efficacy.

The TALIS Starting Strong Survey 2018 includes several items that contribute to a measure of self-efficacy. These items combine to produce a single self-efficacy dimension. The indicators and dimensions concerned with self-efficacy are:

- Self-efficacy relating to equity and diversity practices.
- Self-efficacy regarding process quality of staff-child interaction.
- Self-efficacy regarding the assessment and monitoring of children.
- Self-efficacy regarding shortage of resources (staff, ICT, materials, physical space).

2.1.2. Themes that intersect with other themes

Equity and diversity in the child group

Introduction

The TALIS Starting Strong Survey 2018 addresses two aspects of equity and diversity in the child group: socio-economic and cultural. While disadvantaged family background often overlaps with minority backgrounds, the two aspects are discussed separately here, reflecting that the additive risk of cultural minority or second-language learner status and social disadvantage is still poorly understood (Leseman and Slot, 2014).

Theoretical background

Socio-economic equity and diversity

ECEC literature has traditionally focussed specifically on socio-economic differences and the potential of high-quality ECEC to compensate for the deprived home environments often experienced by children growing up in poverty (see Duncan and Magnuson, 2013, for recent overviews, Leseman and Slot, 2014). For instance, preventing "intellectual disability" among poor children was the main focus of famous early intervention studies, such as the Perry Preschool (Schweinhart and Weikart, 1997). The main idea, which remains dominant in both research papers and policy documents (e.g. OECD, 2006), is that if children are exposed to a safe, nurturing, and enriched environment in ECEC, these experiences will offset the negative consequences associated with poverty. There is evidence from both randomised controlled trials and observational studies that ECEC has the potential to improve the life chances of children from disadvantaged families (e.g. Barnett, 2011, Camilli et al., 2010, Dearing et al., 2009, Melhuish et al., 2008b, Zachrisson and Dearing, 2015). Although some countries have implemented targeted equity policies such that disadvantaged children can experience higher quality ECEC (Leseman et al., 2017, Slot et al., 2015a), it is a paradox that in other countries there still remains social selection into ECEC and ECEC quality, with socio-economically disadvantaged children being the least likely to attend high-quality ECEC (Petitclerc et al.,

2017). This includes countries with market-based and targeted programmes (e.g. in the United States, Fuller et al., 1996), and countries with subsidised universal access to ECEC, such as Norway (Sibley et al., 2015, Zachrisson et al., 2013). Moreover, although the cited studies show that attending (compared to not attending) high-quality ECEC settings may benefit children's development, well-being and learning, it remains an open question as to what constitutes the "active ingredients" or the quality features of a programme responsible for these outcomes (Duncan and Magnuson, 2013, Sim et al., 2018). For instance, two meta-analyses of process quality of the staff-child interaction failed to find ECEC quality to be more beneficial for children from low compared to children from higher socio-economic backgrounds (Keys et al., 2013). Identifying socio-economic gaps in ECEC quality (broadly defined) and disentangling the "active ingredients" of ECEC involved in promoting equity in developmental opportunities should therefore be priorities in future research (Duncan and Magnuson, 2013, Sim et al., 2018).

Children from socio-economically disadvantaged families, and from ethnically diverse families, often attend centres with other children from similar backgrounds (Becker and Schober, 2017). Merging evidence from both the United States and Norway suggests that peers in ECEC influence both language- and socio-emotional development (Justice et al., 2011, Neidell and Waldfogel, 2010, Ribeiro et al., 2017, Ribeiro and Zachrisson, 2017). Thus, the peer-group composition influences children's development. For example, a study from the United States found children to have more favourable development of cognitive school readiness skills when attending preschool classrooms with higher mean socio-economic status, regardless of the children's own background (Reid and Ready, 2013). Likewise, in the Netherlands, children from socio-economically disadvantaged families attending mixed background child groups gained more in literacy and reading than children in socio-economically homogenous, targeted, child groups (de Haan et al., 2013a). While in Germany, structural features and the availability of learning material was not associated with group composition (Becker and Schober, 2017), evidence from the United States suggests that in some contexts, parents in socio-economically disadvantaged families tend to choose centres of lower quality than more affluent parents (Dowsett et al., 2008). It is therefore of high policy relevance to identify across countries the extent to which disadvantaged children are clustered in ECEC, and whether and where centres with substantial numbers of disadvantaged children have lower quality than centres with more affluent peers.

Cultural equity and diversity

The theme of cultural equity and diversity is becoming increasingly important as the child population becomes more culturally diverse and a larger proportion attends ECEC. For European countries in particular, the unprecedented flow of migrants and refugees in 2015 and 2016, and an increasing focus on the challenges and benefits of a culturally and ethnically heterogonous population, highlights the importance of this theme, while cultural diversity in ECEC settings is of relevance for most countries.

The TALIS 2018 Conceptual Framework (Ainley and Carstens, 2018) highlights that a dominant paradigm in the study on cultural diversity policies and organisation comes from work by Ely and Thomas (2001), which articulates two perspectives in studies of cultural diversity policies. The first, the equity perspective, is an emphasis on fostering equality and inclusion and valuing diversity. Within this perspective there is an emphasis on the equality of all children, the avoidance of discrimination, and the fair treatment of all children (Schachner et al., 2014). This resembles a "colour-blind" approach to diversity, in which there is a goal to create and maintain homogeneity. As this homogeneity often implicitly

refers to the dominant culture of a country, it is often associated with an assimilation tendency. The equity perspective is contrasted with the diversity or multiculturalism perspective. This perspective holds that diversity creates resources that can enrich ECEC environments and which, in turn, can promote respect for, and knowledge of, other cultures. In this approach there is no emphasis on equity, but rather expressions of cultural diversity are acknowledged, if not stimulated. Diversity is celebrated in this perspective as a resource that can lead to more creativity in the group, enhancement of intercultural skills, more knowledge of diversity and other cultures, and more openness to other cultures.

There is some evidence that acknowledgement by staff of diversity in the child group may potentially provide more favourable opportunities for healthy development among minority children (Melhuish et al., 2015). Sammons et al. (2002) found higher scores in a number of cognitive domains among children attending child groups with higher ratings on the ECERS-E diversity subscale.[26]

On the other hand, there is also evidence of a negative relationship between process and environmental quality and cultural diversity in terms of the proportion of immigrant or multilingual children, both in ECEC and family day-care settings (OECD, 2018). The TALIS Starting Strong Survey 2018 data will be able to contribute further evidence to this pressing area of research.

Analytical potential and indicators

Within theme analyses

The TALIS Starting Strong Survey 2018 provides an opportunity for the exploration of approaches to diversity across countries, as well as the examination of the relationship between reported approaches and pedagogical practices and the composition of children.

Cross-theme analyses

There are important specific policy issues relating to equity and diversity that are addressed elsewhere in this document (e.g. under the section on process quality of staff-child interaction), where diversity is an independent variable. Two policy issues worth highlighting here are: 1) the need to map the diversity of child groups in ECEC settings and to compare ECEC quality indicators in groups with high degrees of diversity compared to groups with lower degrees of diversity; and 2) the need to identify unique pedagogical practices and staff attitudes related to equity and diversity.

Other analyses including measures related to equity and diversity as dependent variables include within and between-country analyses of whether staff perceptions, centre approaches, pedagogical practices, and language stimulation differs between ECEC centres with different child group compositions. Also, analyses of whether staff perceptions, centre approaches, pedagogical practices, and language stimulation are associated with staff characteristics (language background, education/training) would be of relevance.

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[26] The ECERS-E Diversity subscale includes items on planning for individual learning needs, gender equality and awareness, and race equality and awareness Mathers, S., Linskey, F., Woodcock, J. & Williams, C. 2013. Mapping the Early Childhood Environment Rating Scale to the Early Years Foundation Stage (EYFS) 2012. Manchester, UK: A+ Education Ltd.

The TALIS Starting Strong Survey 2018 adopts the dual emphasis on socio-economic equity and multiculturalism taken by TALIS 2018 by adopting some questions from TALIS 2018 to an ECEC setting, and adding new questions based on ECERS-E. Indicators include:

- composition of children in the ECEC centre

- composition of children in a target group

- approaches to diversity

- pedagogical practices with second-language learners

- content of professional development and need for further development regarding equity and diversity

- self-efficacy relating to equity and diversity practices.

Conclusion

The TALIS Starting Strong Survey 2018 aims to gather quality indicators on each of the 12 themes described in this section in order to provide participating countries with comparable data on the learning and well-being environment in ECEC settings and ECEC working conditions. The TALIS Starting Strong Survey 2018 does not measure how these themes impact or relate to staff and ECEC effectiveness or child development. However, it does provide opportunities to investigate the relationships between quality factors and other characteristics of ECEC provision, such as: centre climate and process quality; professional development and pedagogical practices; and factors that form part of work environment and job satisfaction, motivation and self-efficacy.

The breadth of academic and policy research in this field is extensive, although more research is needed to clarify the effect of, and relationships between, the indicators for each theme. The literature presented in this section includes country-specific and international research, and provides a foundation for the development of common indicators that appear to be relevant to an international survey such as the TALIS Starting Strong Survey 2018. The priorities of the participating countries and the literature review in this section have helped to guide the creation of the TALIS Starting Strong Survey 2018. Each subsection provided policy and research evidence in support of the indicators associated with each theme. This section shows that the themes initially requested by the participating countries are indeed important aspects of quality learning and well-being environments in ECEC settings, and may serve as potential avenues for ECEC sector improvement.

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Annex A. Overview of the ISCED 2011 classification

The International Standard Classification of Education (ISCED) classifies education programmes and related qualifications by education levels and fields.

ISCED 2011 is intended to be valid internationally and across the full range of education systems. The ISCED 2011 classification was adopted by the UNESCO General Conference in November 2011.

ISCED 2011 has nine levels of education, from level 0 to level 8:

- ISCED 0: Early childhood education
- ISCED 1: Primary education
- ISCED 2: Lower-secondary education
- ISCED 3: Upper-secondary education
- ISCED 4: Post-secondary non-tertiary education
- ISCED 5: Short-cycle tertiary education
- ISCED 6: Bachelor's or equivalent level
- ISCED 7: Master's or equivalent level
- ISCED 8: Doctoral or equivalent level

ISCED Level 0 refers to early childhood programmes that have an intentional education component. ISCED Level 0.1 refers to early childhood educational development targeted at younger children, typically aged 0 to 2 years. ISCED Level 0.2 is pre-primary education targeted at children from the age of 3 years to the start of primary education.

Annex B. Priority rating exercise

This annex presents details of the method used by the OECD Secretariat to gather initial priorities from countries regarding the themes and indicators to be included in the TALIS Starting Strong Survey 2018. The priority rating exercise was carried out in May and June 2015 with the voluntary participation of nine interested countries, representing a wide variety of geographical and cultural backgrounds.[27]

The exercise was organised under the three main policy issues: 1) ensuring quality of learning and well-being environments; 2) motivating, attracting and retaining staff to the profession; and 3) developing staff for and within the profession. Each policy issue covered a number of themes (a total of 15 themes were presented). For each theme, a number of possible indicators that could be used to gather data on the theme were listed for consideration.

The goal of the priority rating exercise was to obtain indications of preferences from countries regarding: 1) the questionnaire structure, i.e. whether they should cover a wide range of topics (breadth), or focus on a smaller number of topics covered in more detail (depth); and 2) themes and indicators that should be considered as a priority for inclusion in the questionnaires.

Regarding the questionnaire structure, countries expressed a clear preference for examining at least six themes, rather than fewer themes in more depth (see Table 3).

Table 3. Countries' preferences regarding the breadth vs. depth of the questionnaire (based on responses from 9 countries)

Breadth and depth of coverage options	Rating points (100)
The questionnaires should cover between 2 and 5 themes	1
The questionnaires should cover between 6 and 9 themes	36
The questionnaires should cover between 10 and 12 themes	31
The questionnaires should cover between 13 and 15 themes	32
Total (should add-up to 100)	100

Table 4 shows the list of the 15 themes within each of the five high-level policy issues. Countries were invited to divide 100 rating points between the 15 themes, and then rank the indicators according to their priority within those themes. Staff and centre characteristics were included by default and thus not considered in the rating exercise. Respondents to the priority rating exercise also signalled which indicators were considered most important to include within each of the rated themes. A total of 81 indicators were included in the full list.

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[27] Countries that provided their ratings were: Germany, Israel, Japan, Kazakhstan, Korea, Luxembourg, Norway, Turkey and the United States.

The results of the thematic priority rating exercise are included in Table 4, which shows that some themes were regarded as very high priority (e.g. staff education and training, learning environments, staff pedagogical practices and beliefs), while others were considered of less importance (e.g. innovative practices and evaluation).

Although this exercise is useful to provide guidance for the development of the framework and questionnaires, it should be noted that there was significant between-country variation in these rankings, and the highest rated themes overall match the priorities of some countries more closely than others. Moreover, not all participating countries participated in this priority rating exercise as it took place a year before countries committed to taking part in the survey.

Table 4. Countries' preferences regarding priority themes (based on responses from 9 countries)

	Average (9 countries)
Theme 3.1 Pre-service education and training	10.2
Theme 1.2 Environments (e.g. climate and composition of classroom/playroom), staff beliefs on process quality, and staff self-assessment	9.8
Theme 1.1 Staff's pedagogical practices, staff beliefs and self-assessment	9.7
Theme 2.1 Working time and workload (both staff and centre heads)	9.7
Theme 3.3 In-service education and training	8.1
Theme 1.5 Leadership by centre heads	7.3
Theme 1.3 Staff professional practices	7.1
Theme 2.2 Job satisfaction	6.7
Theme 2.6 Staff attrition and turnover rates	5.7
Theme 2.4. ECEC workforce supply and demand and recruitment strategies	5.6
Theme 2.3 Recognition, reward and evaluation of staff	5.2
Theme 3.4 Satisfaction, take-up, and effectiveness of in-service education and training	5.0
Theme 3.2 Satisfaction and effectiveness of pre-service education and training	4.7
Theme 2.5 Attracting good students into ECEC study programmes/ECEC profession	3.2
Theme 1.4 Innovative practices and evaluation	2.1

Annex C. Design of the TALIS Starting Strong Survey 2018

Defining the TALIS Starting Strong Survey 2018 target populations

The TALIS Starting Strong Survey 2018 investigated two target populations:

- Staff and centre leaders working in centres belonging to ISCED Level 0.2.

- Staff and centre leaders working in centres providing services for children under the age of 3.

Defining ECEC centres in the TALIS Starting Strong Survey 2018

Centres were institutional (officially registered) settings that provided ECEC programmes, i.e. formal education and care for young children from birth up to entry into primary education, also defined as ISCED Level 0. Settings had to provide educational activities for at least 2 hours per day and 100 days a year in order to be classified as a "centre".

ECEC centres accommodating children belonging to ISCED Level 0.2 were targeted for the ISCED Level 0.2 survey. They provided education and care designed to support early development in preparation for participation in school and society, and usually accommodated children from age 3 to the start of primary education, also often referred to as "pre-primary education".

For the explorative survey of services for children under the age of 3, ECEC centres were targeted that: 1) accommodated children younger than 3 years of age; and 2) implemented early childhood educational development programmes. Those can be based in a traditional centre (e.g. a kindergarten or a crèche) or in someone's home. Facilities that provided childcare only (supervision, nutrition and health) were not included in the TALIS Starting Strong Survey 2018 sample.

Centres that accommodated ISCED Level 0.2 and children under the age of 3 belonged to both target populations.

Defining ECEC centre staff in the TALIS Starting Strong Survey 2018

The target population of ECEC centre staff is comprised of the centre leaders or managers and all persons working regularly in a pedagogical way with children within registered early education and care. ECEC centre staff members were defined as persons who, as part of their regular duties in the target centre, provided learning opportunities or care. Centre leaders were defined as persons with most responsibility for the administrative, managerial and pedagogical leadership in their ECEC centre. In smaller centres, the centre leaders might also have spent part of their time working with children.
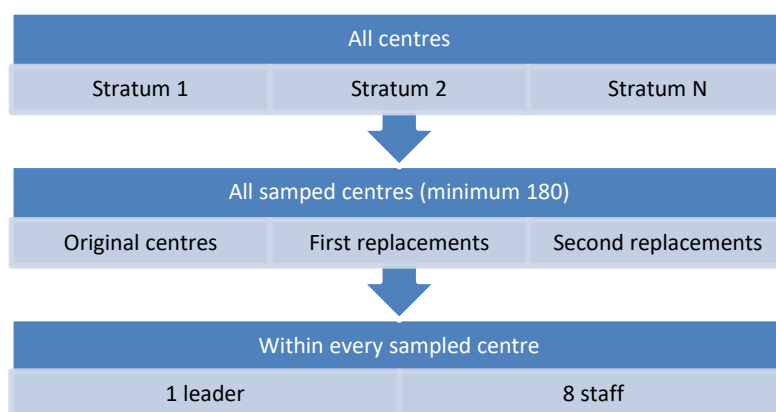
Staff members were in scope regardless of the hours they worked with children of the respective target populations. Therefore, staff members working with children of both age groups belonged *de facto* to both target populations.

TALIS Starting Strong Survey 2018 sample design

The objective of the survey was to obtain unbiased estimates of the parameters calculated during the analysis process for each of the two target populations. A suitable sampling strategy was chosen to reflect this objective. The samples had to yield sufficient data and suitable indicators to enable policy makers and researchers to make meaningful interpretations of the study results. The samples also had to be sufficiently broad so that labour market and system-wide indicators could be used to draw valid inferences for policy analysis. The resultant data should contain the necessary detail so that centre-level data and indicators would facilitate policy discussion. This was required for both the leader and staff questionnaires, and for each target population.

The samples for the main survey consisted of a minimum of 180 centres per participating country and target population, and 8 staff members within each sampled centre. If a centre had fewer than 8 staff members, all were included in the sample.

Figure 3. Overview of sampling design

All centres		
Stratum 1	Stratum 2	Stratum N

All samped centres (minimum 180)		
Original centres	First replacements	Second replacements

Within every sampled centre	
1 leader	8 staff

If countries, for diverse reasons, were prevented from surveying all ECEC staff, they were allowed to exclude centres. However, a 5% threshold was adopted as an upper limit for exclusion. Centres entirely devoted to children with special needs were considered out of scope for the survey. However, staff members working with children with special needs in regular ECEC centres were in scope. Substitute and other emergency staff were also not part of the target populations.

The sampling plan was a two-stage design, with centres as primary sampling units and staff as secondary sampling units. Depending on each country's unique situation, centres were selected with a systematic random sampling approach, either with equal probability, or with probability proportional to size.

Minimum acceptable participation rates were fixed at 75% of centres (after replacement of non-responding centres) and 75% of staff from participating centres. A centre was deemed to have participated if at least half of their sampled staff members completed the staff questionnaire.

Overview of survey instruments and their development

In general, the TALIS Starting Strong Survey 2018 instruments cover selected antecedents, as well as centre inputs, processes and centre outputs, as discussed in Section II. All the variables presented in Table 5 are in line with the policy objectives of the survey set by the Extended ECEC Network on the TALIS Starting Strong Survey 2018, and have been translated into the questionnaires by the Questionnaire Expert Group (QEG).

Table 5. Classification of the core parts of the TALIS Starting Strong Survey 2018 questionnaires

	Staff questionnaire	Leader questionnaire	Combined questionnaire
Antecedents	Staff background characteristics	Centre leader background characteristics	Staff background characteristics
Centre input	Child characteristics as perceived by staff	Centre community characteristics	Centre community characteristics
	Stakeholder relations	Stakeholder relations	Child characteristics as perceived by staff
	Staff education and initial preparation, in-service education and training		Stakeholder relations
			Staff education and initial preparation, in-service education and training
Processes	Staff pedagogical practices and beliefs	Centre leadership	Staff pedagogical practices and belief
	Staff professional practices	Staff professional practices	Staff professional practices
			Centre leadership
Centre output	Centre climate	Centre climate	Centre climate
	Staff satisfaction	Centre leader satisfaction	Staff satisfaction

The TALIS Starting Strong Survey 2018 questionnaires are based on:

- A review of the proposed themes and indicators for the survey to ensure that the variables, indicators and themes provide a logical basis for instrument development, giving consideration to completeness and coherence.

- A review of the catalogue of existing questions compiled from the TALIS 2013 and TALIS 2018 surveys, as well as other national and international studies, in order to assess their suitability for measuring variables within the TALIS Starting Strong Survey 2018 analytical framework and to identify other possible sources of exemplary questions.

- Newly developed questions for the development of the identified indicators and research questions.

- Stakeholder feedback from the Extended ECEC Network on the TALIS Starting Strong Survey 2018 and the ECEC Network.

- A thorough review and revision of the questionnaires in light of the pilot and field trial results.

Overview of survey operations

As with many other large-scale international comparative surveys (e.g. TALIS), the TALIS Starting Strong Survey 2018 included three consecutive study phases: a pilot study, a field trial and the main survey (Figure 4). In order to validate the quality and content of the survey instruments for the ECEC context, especially for newly developed items, but also for items adapted from TALIS 2018, a pilot study was conducted by all countries. Based on the positive experiences and results from TALIS 2013, a qualitative approach was also selected for the TALIS Starting Strong Survey 2018 pilot. Following this approach, feedback and comments from ECEC staff members and centre leaders of both TALIS Starting Strong Survey 2018 target populations (ISCED Level 0.2 and children under the age of 3) were requested as a result of guided focus group discussions carried out in all participating countries. Field trial instruments were then prepared based on the results and feedback collected in the pilot study.

Figure 4. General timeline of the TALIS Starting Strong Survey
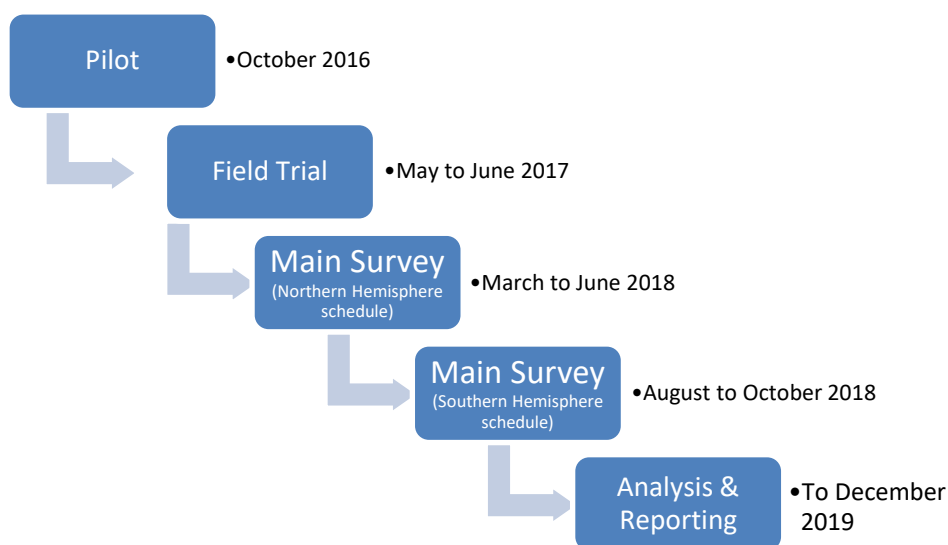
The objective of the field trial was to test the survey instruments and operational procedures in all participating countries in preparation for the main survey. Due to the larger amount of field trial survey material, a rotated questionnaire design was implemented. The rotated questionnaire design steered the requirements for the field trial minimum sample sizes per country, which was set to 30 sampled centres per country, ideally providing data for 30 centre leaders and 240 ECEC staff members per country and target population (if all respondents completed their questionnaires). Each participating country was required to implement the field trial according to standardised procedures before the main survey. Technical standards and corresponding quality control measures were in place and in line with other international large-scale surveys, such as TALIS 2018, to ensure that the study was implemented in ways that could yield comparable data across participating countries.

The main survey data collection was conducted in two waves that took into account the different timings of the start of the school year in northern and southern hemisphere countries. A minimum sample of 1 440 ECEC staff members and their centre leaders working in 180 sampled centres was selected for each target population (ISCED Level 0.2 and children under the age of 3). In consultation with the international research consortium, national study centres prepared individualised national survey operation schedules within the given international timeline. The field trial and main survey were carried out according to the technical standards, manuals and guidelines to ensure high response rates and high-quality data.

As a consequence of the positive experience and increasing number of participants who completed the TALIS 2008 and 2013 questionnaires online, this delivery mode was defined as the main mode of questionnaire administration in the TALIS Starting Strong Survey 2018. Online questionnaire administration offered a number of operational benefits, including a significant reduction of paper handling and data capture costs for national study centres. Online data collection helped improve the administration of questionnaires as it was more flexible, adaptive, and efficient. For example, filter questions can guide respondents through the questionnaire, inconsistencies in responses can be checked in real time, and no manual data entry has to be planned for and organised.

All questionnaires were made available to countries in English. For the field trial and the main survey, questionnaires were adapted and translated at the national study centres and submitted for international translation verification using the IEA eAssessment System. National study centres were trained in adapting and translating the instruments into their local language(s) in electronic form, and in how to deliver the questionnaires using the IEA Online Survey System (OSS). The OSS Data Monitor provided national study centres with the opportunity to monitor the questionnaire return status and the status of questionnaire completion at any time, allowing them to keep track of response rates.

The traditional paper delivery mode was still fully supported by the research consortium as a fall-back strategy for when individual respondents requested a paper instrument, and for participants where a full delivery of the questionnaires online was not possible. The IEA eAssessment System supported the paper delivery mode by providing direct instrument assembly and print functionality. A final layout verification step applied to the paper and online instruments guaranteed high questionnaire quality and comparability with the questionnaires delivered online.

The TALIS Starting Strong Survey 2018 required detailed attention to all aspects of survey quality and quality control measures. Quality observation measures were implemented in the following areas of activities:

- technical standards, manuals, guidelines

- sampling plan implementation

- instrument preparations, including national adaptations, translation and translation verification, and layout verification

- survey implementation and data collection (online and on paper)

- international and national quality observation monitoring of data collection

- data entry, processing and products

- weighting

- adjudication

- analysis and report production.

Standards, manuals and guidelines defined the rules that national study centres were asked to follow when preparing and implementing the TALIS Starting Strong Survey 2018. Special attention was given to the training of national project managers (NPMs) and their staff to enable them to fulfil all required tasks and activities to the highest quality possible.

In international comparative surveys like the TALIS Starting Strong Survey 2018, it was of utmost importance to apply instruments identical in meaning, wording and style in all participating countries and their languages. Several quality control steps were developed to ensure the comparability of the instruments. First, mandatory and optional national adaptations were prepared by the national study centres and approved by international research consortium. Second, instruments were translated by national study centres following international standards and procedures defined in the Survey Operations Procedures (SOP) manuals. Third, all translated instruments had to pass the translation verification procedure that flagged any deviation of the translated instruments from the source versions. Intensive communication during the translation/verification process guaranteed high-quality survey instruments. All adaptations and acceptable deviations from the source versions of the questionnaires were documented and considered during data processing and adjudication. In a final step prior to printing, paper questionnaires were assembled and produced for layout approval by the International Study Centre (ISC).

International quality observation monitoring was a central part of the quality control measures of the TALIS Starting Strong Survey 2018. An International Quality Observation Programme was implemented, and international quality observers (IQOs) were trained in each country to conduct the programme. In addition, a National Quality Observation Manual, as well as training and guidelines for NPMs, were provided to prepare and implement national quality observation measures.

After data collection was completed in each country, NPMs were obliged to follow the standards and guidelines described in the SOP units and to attend data management training. Any national adaptations were documented by the NPMs and submitted to the international research consortium for approval.

In participating countries that used the paper delivery mode, data entry software, together with codebooks, supported standardised data entry procedures and data processing. Double data entry of paper versions of the questionnaires by two key-entry operators was selected as an effective measure to detect and reduce systematic or incidental data entry errors. Here, the advantage of online data collection became evident because data entry already controlled for value ranges and variable types. Data submission by the national study centres was monitored closely by the international research consortium to verify the completeness and quality of the data received.

A fully documented international database containing ECEC staff and centre leader responses, together with the survey weights to allow published estimates to be reproduced and original analyses to be conducted, will be made available free of charge online. A technical report documenting the methods and procedures used in developing and implementing the TALIS Starting Strong Survey 2018 and analysis guidelines will also be prepared and published.

Annex D. Overlap of themes and indicators between the TALIS Starting Strong Survey 2018 and TALIS 2018

Themes and indicators by theme	Type of overlap at the item level				Total count of items
	Same item	*Minor adaptation*	*Major adaptation*	*New item*	
1. Process quality of staff-child interaction		**6**	**6**	**80**	**92**
Beliefs about enhancing the development of children's abilities and skills		1		11	12
Engagement in collaborative professional practices		4	1	2	7
Facilitating numeracy learning				5	5
Facilitating play and child initiated activities				13	13
Facilitating pro-social behaviour			1	9	10
Language stimulation and support for literacy learning				20	20
Staff emotional support for children				4	4
Content of professional development and need for further development regarding process quality of staff-child interaction				12	12
Pedagogical practices with second-language learners			1	1	2
Self-efficacy regarding process quality of staff-child interaction			2	3	5
Time spent on process quality		1	1		2
2. Monitoring children's development, well-being and learning		**1**	**2**	**3**	**6**
Content of pre-service education programme regarding assessment and monitoring		1			1

Themes and indicators by theme	Type of overlap at the item level				Total count of items
	Same item	*Minor adaptation*	*Major adaptation*	*New item*	
Content of professional development and need for further development regarding assessment and monitoring				2	2
Self-efficacy regarding the assessment and monitoring of children			1		1
Time spent on the assessment and monitoring of children				1	1
Staff engagement in collaborative professional practices related to the assessment and monitoring of children			1		1
3. Structural quality characteristics	**2**	**12**	**4**	**42**	**60**
Centre total enrolment and capacity		1		1	1
Composition of children in target group			2	8	10
Composition and role of staff in target group				8	8
Centre staff human resources		1		6	7
Shortage of resources including staff, ICT, material and physical space	1	5	2	2	10
Staff attrition and turnover		2		1	3
Centre funding and budget constraints	1	2		3	6
Centre location and environment of the neighbourhood		1		13	14
4. Pedagogical and administrative leadership		**14**	**6**	**16**	**36**
Appraisal and feedback				1	1
Beliefs about leader and pedagogical leadership			1	4	5
Budget constraints				1	1
Centre evaluation				1	1
Centre staff resources				1	1
Distributed leadership		7	2	1	10

Themes and indicators by theme	Type of overlap at the item level				Total count of items
	Same item	*Minor adaptation*	*Major adaptation*	*New item*	
Distribution of tasks		3	1	1	5
Pedagogical leadership		4	2	2	8
Regulations constraints				1	1
Resources for professional development				2	2
Staff shortages				1	1
Time spent on pedagogical and administrative leadership		1			1
5. Climate	**4**	**17**	**1**	**6**	**28**
Climate for staff learning	1				1
Distributed leadership		3			3
Number of working hours		1			1
Shared culture		1			1
Staff engagement in centre		2			2
Time spent on tasks related to upkeep of the ECEC centre (e.g. cleaning)		4	1	3	8
Sources of work stress	3	6		3	
Staff beliefs about spending priorities		1			1
6. Stakeholder relations		**3**	**3**	**29**	**35**
Parent or guardian engagement		3	2	6	11
Relationships with other stakeholders (e.g. parents or guardians, social services, schools, community centres)			1	7	8
Outreach to stakeholders (e.g. parents or guardians, social services, community centres)				8	8
Transition to other education levels or primary school				8	8

Themes and indicators by theme	Type of overlap at the item level				Total count of items
	Same item	*Minor adaptation*	*Major adaptation*	*New item*	
7. Background and initial preparation	**5**	**16**	**9**	**20**	**50**
Age	2				2
Content of pre-service education programme	1	2	4	9	16
Content of pre-service education programme regarding assessment and monitoring		1			1
Characteristics of education and initial preparation programme				6	6
Qualifications gained from education and initial preparation programme		3		1	4
Educational attainment		2			2
Employment status		3	1	2	6
Gender	2				2
Place of birth background				1	1
Work experience		5	4	1	10
8. Professional development	**30**	**22**	**9**	**37**	**98**
Type of induction activity	5	4	1	1	11
Participation in professional development activities	1	5		2	8
Type and content of professional development	2	4	2	18	26
Incentives and resources to participate in professional development	5	3			8
Barriers to professional development	12	1		2	15
Staff needs for further professional development	5	4	6	14	29
Staff beliefs about spending priorities		1			1
9. Well-being	**11**	**18**		**14**	**44**
Career aspirations				1	1

Themes and indicators by theme	Type of overlap at the item level				Total count of items
	Same item	*Minor adaptation*	*Major adaptation*	*New item*	
Satisfaction with career		2			2
Satisfaction with profession	1	1		2	4
Satisfaction with autonomy, ECEC centre, work environment and working conditions	5	5		4	14
Sources of work stress	5	10		7	22
10. Professional beliefs about children's development, well-being and learning		**4**	**1**	**11**	**16**
Beliefs about enhancing the development of children's abilities and skills				11	11
Staff beliefs about spending priorities		4	1		5
11. Self-efficacy		**6**	**5**	**13**	**24**
Self-efficacy relating to equity and diversity practices				2	2
Self-efficacy regarding process quality of staff-child interaction			2	4	6
Self-efficacy regarding the assessment and monitoring of children			1	1	2
Self-efficacy regarding shortage of resources (staff, ICT, materials, physical space)		6	2	6	14
12. Equity and diversity in the child group		**10**	**3**	**21**	**34**
Composition of children in centre		3	1	2	6
Composition of children in target group		4			4
Approaches to diversity		3		5	8
Pedagogical practices with second-language learners				11	11
Content of professional development and need for further development regarding equity and diversity			2	1	3
Self-efficacy relating to equity and diversity practices				2	2