



Principal Continuous Professional Development in the Age of Intelligence Evidence from TALIS 2018 Survey

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Abstract. Following the Program for International Student Assessment (PISA), Organization for Economic Cooperation and Development (OECD) has carried out another transnational survey in the field of basic education - International Teaching and Learning Survey (TALIS), which is the first time that OECD has taken teachers and principals as research objects in the age of intelligence. This research mainly focuses on 'Principal continuous professional development', analyzing the basic overview of its connotation, dimensions, indicators, and influencing factors. It aims to provide reasonable policy based on the findings of the TALIS 2018 survey.

Keywords: TALIS · Principal · Continuous Professional Development · The Age of Intelligence

1 Introduction

The concept of continuous professional development for principals in TALIS 2018 was described as in-service training activities beyond the initial education and induction of principals. It is premised on principals as lifelong learners, who must participate in continuous professional development (CPD) activities to strengthen their management and leadership skills. CPD activities for principals require a certain base of knowledge and skills, and this needs to be built upon the initial education or training of school leaders. Stakeholders and responsible authorities within the education system should therefore identify the professional needs of principals in their careers and ensure that relevant training is implemented; that there is mutual sharing of responsibility and collaboration among school actors; and that there is communication, coordination and feedback within each education system. More importantly, the continuous professional development of principals should be aligned with the pre-service and in-service training programs for school leaders or principals.

TALIS 2018 identifies four characteristics of CPD for principals as 'content-focused', 'active learning and collaboration', 'sustained length', and 'school-embedded training' (see Table 1). First, effective CPD programs should be content-oriented and based on a strong discipline and curriculum to help principals better master their subjects. At the same time, they should consider principals' training needs. In addition, training should have a coherent structure that links principals' previous experience, classroom

Table 1. TALIS 2018 continuous professional development characteristics for Principals

Characteristics	Contents of the Characteristics
Content focus	<ol style="list-style-type: none"> 1. It built on prior knowledge; 2. It adapted to personal development needs; 3. It had a coherent structure; 4. It appropriately focused on the content needed to teach the teacher's subjects.
Active learning and collaboration	<ol style="list-style-type: none"> 1. It provided opportunities to practice/apply new ideas and knowledge in the teacher's own classroom; 2. It provided opportunities for active learning; 3. It provided opportunities for collaborative learning; 4. It focused on innovation in the teacher's teaching.
Sustained length	<ol style="list-style-type: none"> 1. It provided follow-up activities; 2. It took place over an extended period of time
School-embedded	<ol style="list-style-type: none"> 1. It took place at the teacher's school; 2. It involved most colleagues from the teacher's school

practice, and measurable outcomes. Secondly, there is active learning and collaboration. Active learning is a method of teaching and learning in which the student is at the center of the process. Peer-to-peer cooperation is a crucial part of an active learning strategy. Collaboration is often considered as a more cost-effective approach to professional development than other initiatives such as courses or workshops, as it allows principals' learning to be based on informal networks within the school. Significantly, the TALIS 2018 survey indicates that 'content focus' and 'active learning and collaboration' are key features of ongoing professional development training for principals, while 'sustained length' and the influence of 'school-embedded training' in CPD training is very weak [3].

In summary, according to the TALIS research of primary and secondary school principals, CPD activities are critical to the success of significant education reforms in OECD nations, and CPD techniques have been highlighted as a fundamental trait of high-achieving education systems.

2 Dimensions and Indicators on the Continuous Professional Development of Principals

TALIS 2018 questionnaire focuses on seven sections, which revolve around the continuous professional development.

- a. Personal background information: information on the gender, age, educational background, and work experience of school leaders.
- b. School context: information on the size, location, level, and nature of the school, as well as the number of students and staff.

Table 2. TALIS 2018 continuous professional development overall for Principals

Dimension	Identity/ role	Survey content
Individual level	Lifelong learners	Professional development (professional preparation, content of professional learning, forms)
Organisational level	Learning leader	Ability to build a learning community System leadership (ability to commission external)

- c. Formal teacher assessment: information on what is assessed, by whom, and how often.
- d. School climate: information on shared decision-making and responsibility among students, teachers, staff, and parents; the development of school culture; and teacher-student and collegial relationships.
- e. Teacher induction and orientation: information on the content, frequency, and scope of induction training.
- f. Diverse school environment: the impact of a diverse school environment on teachers, students, and school policies and practices.
- g. Job satisfaction: school leaders' satisfaction with the work environment, and their careers.

In contrast to TALIS 2013, TALIS 2018 focuses on the changing identity of school leaders in the transformation of schools into learning organisations, at the 'individual level' and the 'organisational level' respectively (see Table 2). At the individual level, TALIS 2018 identifies school leaders as 'lifelong learners' and views the professionalisation of school leaders as a continuous learning process. In terms of the knowledge and skills required to professional school leaders, this investigates their professional preparation (pre-service education or training), in-service education and training, professional development needs and barriers, as well as their interrelationships. At the organizational level, the survey presents school leaders' ethical duty as 'learning leaders,' emphasizing on the professional capacity of school leaders to foster a culture of innovation, facilitate professional collaboration and learning among teachers, and expand connections beyond the school [10].

The broad definition of professional development for principals includes "activities that develop the knowledge, skills, expertise and other characteristics of the individual as a principal" [4]. The concept of continuous professional development for principals in TALIS 2018 is understood as in-service training activities beyond initial education and induction, and lifelong learning is a prerequisite and basis for continuous professional development for principals. The main task of stakeholders and authorities within the education system is to provide appropriate training opportunities to meet the professional needs of principals at different career stages. In addition, the United Nations (UN) has included CPD training as an indicator of the Sustainable Development Goals (SDGs), indicating the increasing relevance of continuous training for the development of principals. At the same time, UNESCO defines CPD activities as a way of monitoring

Table 3. The Framework of Principal continuous professional development in TALIS 2018 survey

Dimensions	Index
Principals participated in CPD activities in the 12 months prior to the survey	<ol style="list-style-type: none"> 1. Courses/seminars about subject matter, teaching methods or pedagogical topics; 2. Courses/seminars about leadership; 3. Courses/seminars attended in person; 4. Online courses/seminars; 5. Education conferences; 6. Formal qualification programme; 7. Peer and/or self-observation and coaching as part of a formal arrangement; 8. Participation in a network of principals; 9. Reading professional literature; 10. Other types of professional development activities.
Need for principals professional development	<ol style="list-style-type: none"> 1. Knowledge and understanding of new developments in leadership research and theory; 2. Knowledge and understanding of current national/local policies on education; 3. Using data for improving the quality of the school; 4. Designing the school curriculum; 5. Designing professional development for/with teachers; 6. Observing classroom instruction; 7. Providing effective feedback; 8. Promoting equity and diversity; 9. Developing collaboration among teachers; 10. Human resource management; 11. Financial management
Barriers to principals participation in CPD activities	<ol style="list-style-type: none"> 1. Do not have the prerequisites; 2. Professional development is too expensive; 3. There is a lack of employer support; 4. Professional development conflicts with the principal's work schedule; 5. Do not have time because of family responsibilities; 6. There is no relevant professional development offered; 7. There are no incentives for participating in professional development.

the achievement of the goals. Overall, in-service training provided by CPD activities is an important part of the professionalisation of principals and has become an important step in their careers. CPD activities for principals have now become an essential element in the success of major education reforms in OECD countries, which are committed to the development of school principal training and objectively reflect the extent to which national policies are being implemented. Further, recent policy reviews have identified CPD strategies as a key attribute of high-achieving education systems.

As shown in the Table 3, principals' CPD consists of three dimensions: principals' continuous professional development (CPD) activities (within the 12 months prior to the survey), principals' CPD needs, and barriers to principals' CPD. Ten types of CPD training were listed in the principals' questionnaire, from which basic indicators of principals' CPD capacity were constructed, including courses or workshops on subject matter, pedagogy or pedagogical topics; leadership courses or workshops; field participation in courses or workshops; online courses or workshops; educational conferences; formal qualification courses; peer or self-observation and mentoring; principals' network participation; reading professional literature and other types of professional activities. In addition, TALIS 2018 provided a list of indicators of the needs and obstacles faced by principals in the process of their CPD, which complemented and provided implications for national education systems to improve the CPD of principals.

3 Factors Influencing the Continuous Professional Development of Principals

In addition to formal education, the training and learning of school leaders is key to the continuous professional development of principals. In OECD countries and economies, 85% of school leaders have completed teacher training or teacher education courses prior to becoming a school leader. In many countries, it is becoming an increasing challenge to recruit people who are willing to take on the role of school leader and to train them appropriately for the role. Research on leadership development programs in the USA shows that school leaders who have been systematically trained in leadership are more often engaged in leadership practices. The TALIS 2013 report- School Leadership for Learning, also found that school leaders who were frequently involved in educational leadership activities in their schools were more likely to have attended relevant principal training. However, the TALIS 2018 report suggests that, on average, only 54% of school leaders in OECD countries and economies have completed at least one school leadership training course prior to becoming a school leader. Compared to the majority of teachers who have received formal education in a relevant profession (subject training or teacher training), training for school leaders is not systematic and is poorly attended.

The TALIS 2018 survey of primary and secondary school principals examines three aspects of principals' continuous professional development: types, needs and barriers. First, in terms of the types of CPD principals participate, the CPD indicators for principals can be divided into two types of activities (see Fig. 1): formally organized activities such as conferences, workshops, and participation in formal qualification schemes; and informally organized activities such as networking, in-school peer collaboration, and reading professional literature. Formal organisational activities, such as attending courses or seminars and reading professional literature enhance principals' intellectual skills, while other informal organisational activities develop collaborative and social skills.

Second, the active involvement of school leaders is essential for the ongoing professional development of principals. Policymakers must therefore take into account the difficulties faced by school leaders in participating in these trainings and ensure that

support mechanisms to facilitate their participation (see Fig. 2). Indeed, continuous professional development should not be seen as the sole responsibility of school leaders, who should also be given appropriate guidance and support by national education systems to help them choose relevant training.

The TALIS 2018 report shows that the biggest obstacle to principals' engagement in CPD is "conflicts with principals' schedules". The reason for this is that countries rarely allocate adequate training time for the professional development of school leaders. Therefore, national education systems should increase the time allocated to CPD for principals so that they can participate in CPD training during their normal working hours, whether through formal channels (e.g. attending courses or workshops) or informal channels (e.g. working with colleagues) [2]. The second major barrier is that the "lack of incentives to engage in CPD for principals" should not be understood simply as an add-on mechanism to the principal's career, but as a means of learning and improvement. The appeal of CPD for principals lies in its ability to genuinely address the real issues that school leaders face in their daily teaching and leadership.

4 Policy Recommendations from the TALIS 2018 Survey on the Continuous Professional Development of Principals

Throughout the TALIS 2018 report, education systems sought solutions to three main issues. The first was to attract accomplished candidates to the school leadership and teaching profession; the second was to provide high-quality induction and in-service training for school leaders and teachers; the third was to support school leaders and teachers in developing and promoting their skills; and the fourth was to improve job satisfaction and career status and retain high-quality school leaders and teachers [5]. Drawing on TALIS 2018's findings, the OECD has proposed a number of educational policies and practices aimed at improving the teaching and learning conditions and professionalism of teachers and school leaders. However, as TALIS results vary by country and economy, the proposed policy indicators are unlikely to be applicable to all education systems and are only instructive.

Firstly, to promote professional learning communities, create a positive school climate and disseminate innovative practices, the TALIS study notes that professional learning communities support progressive change and positively influence educational quality and student outcomes by providing continuous feedback to teachers [9]. A positive school and classroom climate is conducive to student learning and to building relationships among students and between teachers and students that promote their development and well-being. Moreover, it ensures a safe school environment for policy makers, principals, teachers and parents of students [6]. It is worth noting that school leaders are more open to innovation than teachers, i.e. within a positive school climate, through professional learning communities that enhance collaboration between teachers, provide intellectual support for innovative change and nurture the innovative spirit of staff [7]. Overall, building professional learning communities and creating school and classroom climates that are conducive to student learning are helpful in promoting innovative practices.

Second, develop professional standards for school leaders, secure their time and energy commitment, and distributed leadership to develop instructional leadership in school leaders. To begin with, professional standards for school leaders can be used as a tool to guide in-service training in school leadership and to encourage school leaders to engage in pedagogical leadership [8]. This system has been introduced in many countries to clarify the professional standards for school leaders and to articulate the essential knowledge and skills that school leaders need to possess [1]. Subsequently, safeguard the time and energy that school leaders devote to instructional leadership. The quality of teaching and learning depends to a large extent on the support that school leaders give to teachers by providing guidance and investing time and energy in relevant teaching and learning activities. Finally, distributed leadership facilitates the instructional leadership of school leaders. The appropriate use of distributed leadership for school leaders, where management and administrative responsibilities are delegated to teachers or staff with leadership skills, providing a career path to school leadership for teachers with exceptional leadership skills on the one hand, and on the other hand, school leaders have the time and energy to engage in curriculum and teaching activities, providing a way to strengthen the professionalism of school leaders [8].

Thirdly, pre-service preparation, in-service training and incentives are implemented to promote the continuous professional development of principals. First, pre-service preparation of school leaders is a prerequisite for their continuous professional development. Education systems could provide more opportunities for future school leaders to undergo training in leadership skills before they are appointed as school leaders, and make this a specific module that future school leaders need to pass before taking up leadership positions. In addition, a network of school leaders should be established to achieve an in-service training program. Thirdly, the creation of incentives for the ongoing professional development of principals. The concept of incentives is directly related to the issue of motivation for school leaders to participate further in training, so countries are committed to exploring ways to create, nurture or adapt incentives for participation in CPD training. One incentive is to develop training programs that are tailored to the needs of school leaders, and schools should expand CPD training opportunities at limited additional cost. Another key incentive is recognition. The involvement of principals in CPD is a prerequisite for the work of school leaders and a stepping stone to professional growth and career development. With the incentive of recognition, school leaders will take on more responsibility and become recognized as experts and resource providers for other teachers.

5 Discussion and Conclusion

Smart technology is altering people's states of being and their perceptions of life, and "smart technology+" is becoming an unavoidable trend in education as the times progress. As a result, in the age of intelligence, the field of education is undergoing unprecedented changes, and all nations across the globe, including China, are continually deepening education and school reform, which has set new standards and high expectations for principals. This study focuses primarily on 'Principal continuous professional development', evaluating the fundamental overview of its meaning, dimensions, indicators, and affecting elements. The TALIS study of principals' continuous

professional development offers many lessons for educational researchers and policy makers in China.

To begin, the goal is to establish professional learning communities, foster a healthy school atmosphere, and spread new ideas. Furthermore, professional learning communities promote progressive change and favorably affect educational quality and student outcomes by providing instructors with constant feedback. Third, pre-service training, in-service training, and incentives are used to support principals' ongoing professional development.

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