Professional Learning Project

Research Report

August 2016

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Teachers Registration Board
OF SOUTH AUSTRALIA

Acknowledgements

When the Teachers Registration Board of South Australia introduced the requirement for all currently registered teachers to undertake a minimum of 60 hours of professional learning over a 3-year period, the Board was determined that this initiative should not be seen as simply a compliance requirement. Hence the decision to evaluate the nature, preferences and impact of professional learning on the work of teachers. Ideally this initiative should be a natural harvest of teachers' work.

To that end, the Professional Learning Evaluation represents data provided by a large proportion of teachers in South Australia. While the professional learning summaries were part of the requirements for renewal of teacher registration, we thank teachers for their positive involvement and promptness in dealing with the correspondence received from the Board. We are especially appreciative of those teachers who volunteered to participate in focus group interviews held across South Australia. Your views provided the detailed comments required to inform the data received from the online survey and professional learning summaries.

Particular thanks must go to staff at the Teachers Registration Board (TRB) for their assistance in collating and producing this report: Wilson Quan, Emma Harrison, Cathy Lewis, Kerin Dobie, Helen Robinson, Quang Nguyen, Jenny Hocking, Marilyn Large and Nigel Laity.

A special note of thanks is extended to the various national and international teacher registration and certification providers for their information regarding the professional learning requirements for their own jurisdictions.

Finally, it is important to acknowledge the leadership and oversight of Associate Professor Debra Panizzon who authored the report and inducted many of the staff of the TRB to the rich possibilities of educational research. In any such endeavour, expert advice is sought and Professor Andrew Boulton helped ensure that the statistical analyses of data provided valid and reliable interpretations of the findings.

Dr Peter Lind
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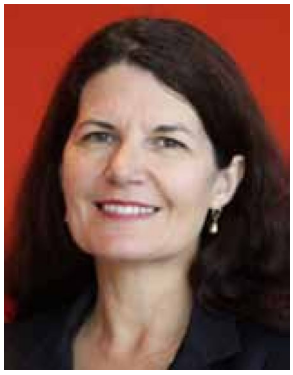

The Teachers Registration Board South Australia contracted Associate Professor Debra Panizzon to design the evaluation project and to oversee its implementation. The Board gratefully acknowledges her expertise and dedicated work in completing this task.

Debra Panizzon is an Associate Professor at Monash University with specialisations in biology and general science education. She has previously worked as the inaugural Deputy Director for the Flinders Centre for Science Education in the 21st Century where she supported decision-making in science and mathematics education by policy makers, educational leaders, industry and other stakeholders. Debra has also worked as Deputy Director for the National Centre of Science, Information and Communication Technology, and Mathematics Education for Rural and Regional Australia (SiMERR) located at the University of New England. Critically, she has particular expertise around secondary teacher education and is an experienced science-education researcher. Debra also reviews papers for two international science education journals as well as key national and international conferences.

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1 Purpose and Scope of the Professional Learning Project

Teachers wishing to renew (full) Registration or Provisional Registration are required to undertake 60 hours of professional learning referenced to the *Australian Professional Standards for Teachers* [APST] (AITSL, 2012) within the three-year term of their registration. This requirement took effect for the first cohort of teachers whose registration expired on the 31st January 2016.

To support the teaching profession in meeting this requirement, an educative strategy was adopted by the Registrar, Manager Policy and Strategic Development and Communications teams with the implementation of a professional learning plan that included -

- A series of information presentations by staff from the Teachers Registration Board (TRB) (including the Registrar) to teachers in regional centres (e.g., Berri, Port Lincoln) and the greater metropolitan area of South Australia.
- A one-day conference with free registration for teachers and the provision of keynote speakers and workshop sessions around professional learning. This day provided an opportunity for the dissemination of information and discussion around a number of questions raised by teachers.
- Resource development and communications involving:
    - Direct communication by teachers (via phone or email) with TRB Project Officers, Professional Standards regarding their personal questions in meeting renewal requirements;
    - An updated website with the Teachers Portal embedded into the site thereby allowing teachers to enter their professional learning activities electronically;
    - Dissemination of the '*Registration Buzz*' – an electronic newsletter sent to all registered teachers that provides updates, possible professional learning opportunities and websites for additional information;
    - Access to the TRB Facebook to allow teachers to share ideas and challenges with their colleagues using social media. The forum is monitored by the TRB Communications team with formal responses uploaded when required; and
    - Opportunity to use Twitter as a means of keeping updated with current news from the TRB.

2 Background Research Literature

The Professional Standards Council defines a profession as:

> *A disciplined group of individuals who adhere to ethical standards. This group positions itself as possessing special knowledge and skills in a widely recognised body of learning derived from research, education and training at a high level, and is recognised by the public as such. A profession is also prepared to apply this knowledge and exercise these skills in the interest of others* (Professional Standards Council, http://www.psc.gov.au/what-is-a-profession[1]).

2.1 Broad Expectations around Professional Learning

In order to maintain, enhance and broaden knowledge, expertise and competence over time, professionals are required to engage in some form of continuing professional development (CPD). Not only is there a specified number of mandatory hours or points of CPD required to maintain certification but the activities comprising CPD must be documented using evidence of completion. In most instances, individuals generally sign off that this CPD is complete as per registration or certification requirements. However, audits are undertaken by most professional organisations as part of an ongoing monitoring process (e.g., Medical Board of Australia, Engineers Australia). A general review of the professions identifies that these expectations are applicable to a broad range of professions, including general practitioners and specialists, nurses and midwives, occupational therapists, certified practising accountants, chartered professional engineers, pharmacists, financial counsellors, and teachers (to name only a few).

Examples of CPD requirements in these professions within Australia include:

- *General practitioners and specialists:* Once a medical degree is completed, all GPs and specialists engage in continuing professional development. The usual amount of CPD is 50 hours per annum, which must include one activity involving peer review, clinical audit or performance appraisal. Full documentary evidence to substantiate the activities claimed must be available for an audit (Retrieved August 2015 from, http://www.medicalboard.gov.au/documents/default.aspx?record=WD14%2F13815&dbid=AP&chksum=a0sKGuDKRzdi0sZjXuzm6Q%3D%3D).
- *Nurses and midwives:* All individuals must undertake between 20-40 hours of CPD every three years. The amount of time required varies depending on the actual position with enrolled nurses requiring 20 hours while a registered nurse/midwife must complete 20 hours of CPD for nursing and 20 hours for midwifery (i.e., 40 hours) (Retrieved August 2015 from, http://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/FAQ/CPD-FAQ-for-nurses-and-midwives.aspx).
- *Occupational therapists:* As from December 2013, every occupational therapist must complete 30 hours of mandatory CPD per annum. Evidence of the completed CPD activities must be compiled into a portfolio that must be retained for five years (Retrieved August 2015 from, http://www.occupationaltherapyboard.gov.au/Codes-Guidelines/Continuing-professional-development.aspx).

1 All hyperlinks identified in this report were updated in June 2016

- *Certified practising accountants:* In order to attain and maintain this status of registration, accountants are expected to complete a minimum of 20 hours of CPD per annum with a total 120 hours required over a three-year time period. If the CPD expectation is not met, members may be downgraded or suspended from the profession (Retrieved August 2015 from, http://www.cpaaustralia.com.au/member-services/continuing-professional-development).

- *Chartered professional engineers:* The minimum number of hours of CPD required over a three-year period is 150 hours, which must cover at least: (i) 50 hours in the area(s) of practice; (ii) 10 hours of risk management; (iii) 15 hours of business and management skills; and, (iv) the remainder relevant to individual's interests and career. To maintain Chartered Status, CPD is reviewed every five years through an audit process (Retrieved September 2015 from, https://www.engineersaustralia.org.au/professional-development/continuing-professional-development).

- *Pharmacists:* From September 2013, all pharmacists are required to complete 40 CPD points per annum, which comprises both accredited and non-accredited activities. Within these restrictions, pharmacists choose the types of activity undertaken across three main groups. Group 1 includes information-based activities with no assessment requirement (e.g., attending a seminar) with each CPD credit equivalent to one hour of work. Group 2 activities result in knowledge and skills improvement with some form of assessment included (e.g., preparing for an external review). For this group two CPD credits are collated for every hour of the activity. Finally, Group 3 is where quality or practice-improvement is the central focus (e.g., giving a conference presentation) with three CPD credits accounting for each hour of the activity. A key limitation is that a maximum of 50% of CPD points can be claimed against Group 1 activities. As with other professions, all CPD is recorded by the individual in case of selection for the auditing process (Retrieved September 2015 from, http://www.pharmacyboard.gov.au/Codes-Guidelines/FAQ/CPD-FAQ.aspx).

- *Financial counsellors:* Within this profession, individuals must complete 20 points of CPD per annum with a minimum of one session from each of three categories: (i) technical - including content knowledge relevant to legal issues; (ii) skills – including cultural awareness, suicide prevention or interviewing; and, (iii) ethics – including conflicts of interest, boundaries and counselling relationships. The CPD points are allocated according to the type of activity with a full day of training accruing six points while preparation of a training session for community education equates to four points (Australian State and Territory Financial Counselling Associations, 2015).

The summary of professions provided here identifies three key points worthy of keeping in mind before considering teaching as a profession.

1. There is a consistency across the professions in the use of the term *continuing professional development* CPD.

2. In most part, the role of CPD is to allow individuals to self-select what they require to enhance their own learning in the profession. In some cases, there are mandated hours or points required in relation to specific areas of CPD but this still leaves the majority of time or point allocation open to members to choose areas of relevance and interest.

3. Most professions have an auditing process with members expected to log their own CPD that should be readily available to the certification authority if requested.

2.2 Professional Learning for Teachers

Professional learning or professional development in education in its broadest sense encapsulates "those processes and activities designed to enhance the professional knowledge, skills, and attitudes of educators so that they might, in turn, improve the learning of students" (Guskey, 2000, p. 16). Traditionally, it has often referred to discrete activities undertaken or completed by teachers. Over the last decade there has been a major shift towards a more social and interactive notion of 'learning' to include the levels of the community in which teachers work as a professional (i.e., year, school, and district) (Borko, 2004; Desimone, 2009). As such, it is not just about what teachers learn individually but as a community of scholars to enhance their own learning, knowledge and understanding as part of a life-long process of *professional growth and scholarship* (Cochran-Smith & Lytle, 1999). Considered in this light, professional learning is intentional, ongoing and systematic in a teacher's daily life ranging from formal and structured topic-specific workshops to 'hallway' discussions with other teachers around classroom practices.

Substantive research exists in the area with Desimone (2009) extricating from the literature the core components necessary if teachers are to enrich their own practice in ways that enhance student learning and achievement by facilitating *teacher professional growth.* These are:

1. *Content focus:* It is not about the content per se but about linking content to the way in which students learn that content that empowers teachers in working with their students.
2. *Active learning:* Teachers need opportunities to engage in active learning involving interactive discussion rather than passive approaches, such as just attending and listening to a lecture. It is cognitive engagement and sharing that is more likely to impact teacher learning over the long term.
3. *Coherence:* The likelihood for teacher change through learning will depend on the degree to which a professional learning activity is consistent with the teacher's existent knowledge and beliefs. A lack of coherence between these two components is unlikely to result in any substantive change in teacher practices.
4. *Duration:* Change in teacher knowledge and understanding (just like students) requires time with ongoing opportunities to engage in professional learning activities necessary to lead to long-term change. While the exact number of hours required as the 'tipping point' is not currently available, there is considerable evidence to suggest that activities sustained over a semester are sufficient.
5. *Collective participation:* Involvement of groups of teachers either from the same year level, school or local district is more likely to have an impact in that it sets up potential ongoing interactions and discourse, which is an extremely "powerful form of teacher learning"(Desimone, 2009, p. 184).

In Desimone's view, careful consideration and inclusion of these components will lead to successful professional learning for teachers, which contrasts significantly from the way in which professional development is often construed (Borko, 2004). Traditionally, professional development is perceived as an *add-on* or *top-up* (filler) for teachers that occurs periodically at designated times of the year (Loughran & Berry, 2011). For many teachers this 'spray-on' approach to professional learning is irrelevant and meaningless because of its lack of connectivity to the teacher's own practice (Mockler, 2005). For example, in high schools this becomes particularly problematic, given the focus on generic professional development that does not actually address the specific needs of subject-specialist teachers (Wallace, 2009).

Hence, the current move in Australia to allow teachers to seek out their own professional learning opportunities addresses a number of the issues highlighted in the literature above while aligning teaching with the other professions. By giving teachers choice and the opportunity to reflect on their own actions, there is a greater opportunity for learning to be transferred to others, albeit peers or students (Gordon & Doyle, 2015). However, engaging teachers in this kind of change so that they take ownership of their professional growth requires policy as alluded to in the following quote by Lorna Earl (previous Head of the International Centre for Educational Change, Ontario Institute for Studies in Education):

> *Professional learning is a powerful lever for getting the kinds of change that can enhance student learning. But this may not happen if the process is purely voluntary, left to teachers to take up or not take up. The kind of professional learning that makes a difference for students is hard work and demands strong policy support and professional determination* (Lorna Earl cited in Timperley, Wilson, Barar, & Fung, 2007, p. ix).

With changing requirements in Australia around professional learning and its alignment to teacher initial and ongoing registration, the following sections provide some indication of the current expectations of professional learning in other countries (similar to Australia) in addition to the states and territories of Australia.

2.3 International Examples of Teacher Professional Learning Requirements

2.3.1 New Zealand

Teachers in New Zealand are not required to undertake a mandatory number of hours of professional learning. However, the legislation does expect teachers to complete "satisfactory professional development during the past three years" in order to renew their full practising certificate. The reasoning here is that in order to maintain their full practising certificate, teachers are appraised against the *Practising Teacher Criteria* (see http://educationcouncil.org.nz/content/registered-teacher-criteria-1) that includes the following specific criteria regarding professional learning and development:

4. *Demonstrate commitment to ongoing professional learning and development of personal professional practice*
    - *identify professional learning goals in consultation with colleagues*
    - *participate responsively in professional learning opportunities within the learning community*
    - *initiate learning opportunities to advance personal professional knowledge and skills*
5. *Show leadership that contributes to effective teaching and learning*
    - *actively contribute to the professional learning community*
12. *Use critical inquiry and problem-solving effectively in the professional practice*
    - *systematically and critically engage with evidence and professional literature to reflect on and refine practice.*

For teachers who are renewing a provisional practising certificate or practising certificate in the category prior to their confirmation, they are required to be identified as "likely to meet the *Practising Teacher Criteria*" by a professional leader who has employed the teacher within the last three to five years. If assurance from the employer is not available, then a list of professional development activities undertaken by the teacher is requested (Email from the Senior Policy Analyst, Education Council NZ, 24/7/15).

2.3.2 Ireland

Presently, there are no mandatory requirements for teacher continuing professional development (CPD) in Ireland although the majority of teachers do engage in various forms of professional learning. The Council's policy around CPD is set out in its *Policy on the Continuum of Teacher Education*. The framework was launched in March/April 2016 with development continuing for implementation in 2020 (see http://www.teachingcouncil.ie/en/Teacher-Education/Continuing-Professional-Development/.

In preparation for this, the Council commenced a consultation process with teachers around their professional learning in 2014. The goal is to enhance the Council's understanding of teachers' learning journeys to inform a national framework for teacher learning. The first phase of consultation began with a blank slate when the Council sought feedback and ideas from registered teachers. More than 3,300 teachers joined the conversation. A first draft of the framework, Cosán is available (see http://www.teachingcouncil.ie/en/Publications/Teacher-Education/Cosan-Framework-for-Teachers-Learning.pdf). The framework is embedded in the core values that underpin all of the Council's work including shared professional responsibility, professionally-led regulation, and collective professional confidence (Email from The Teaching Council, Kildare, Ireland, 1/7/15).

2.3.3 Scotland

Engagement in *Professional Update* (http://www.gtcs.org.uk/professional-update) became a mandatory requirement for all fully registered teachers with the General Teaching Council Scotland (GTCS) from August 2014. Teachers are required to maintain their professional expertise through an agreed program of continuing professional development (CPD) thereby retaining their own autonomy. While administration is held at a local authority or employer level, the GTCS requires that teachers have their professional learning validated on a five-yearly basis. These CPD requirements were set out as part of the McCrone Agreement (Section 2.5, p. 7) produced in 2001. According to this agreement, an additional contractual 35 hours of CPD per annum is to be introduced as a maximum for all teachers, which shall consist of an appropriate balance of personal professional development, attendance at nationally accredited courses, small-scale school-based activities or other CPD activity. This balance is based on an assessment of individual needs that takes account of the school, local and national priorities. It is expected that every teacher will have an annual CPD plan agreed with the immediate manager and that every teacher will maintain an individual CPD record (Email from General Teaching Council Scotland, 23/6/15).

2.3.4 Ontario

The Ontario College of Teachers is the self-regulatory licensing body for the teaching profession in Ontario with responsibility for licensing primary and secondary education teachers. The College certifies teachers in compliance with the *Teachers' Qualifications Regulation* that governs the certification of teachers in Ontario. Currently, there is no requirement for the completion of an induction period *prior* to obtaining full certification in Ontario, nor is there any requirement for completion of a mandatory number of professional learning or development days to maintain full certification in Ontario.

Ontario certified teachers are required to participate in and successfully complete a *New Teacher Induction Program* introduced by the Ministry of Education of Ontario when they enter the workforce after certification (Email from Client Services Ontario College of Teachers, 23/7/15).

2.3.5 United Kingdom

In England and Wales, the Teachers' Standards require all teachers in schools to "take responsibility for improving teaching through appropriate professional development, responding to advice and feedback from colleagues". Professional development is not, however, required for teachers to maintain provisional or full registration of any kind.

The Government's approach to professional development in England and Wales focuses on increasing the capacity of schools to take the lead in developing their teachers and providing greater opportunities for peer-to-peer engagement. The Government believes that head teachers and teachers should be free to choose professional development activities and programs without prescription from central Government. The funding for this is within a school's budget so it is up to schools to determine with their teachers what forms of professional development will be most effective in their particular circumstances.

A national network of Teaching Schools has been created that play a leading role in supporting other schools and in developing peer-to-peer improvement strategies. These Teaching Schools help other schools to identify and access development opportunities based on clear evidence of value and impact.

In terms of the future, the Government has appointed David Weston, Chair of the Teacher Development Trust, to lead an independent group to develop a non-statutory standard for teachers' professional development. The group, known as the Teachers' Professional Development Expert Group concluded the work at the end of 2015 with the new standard expected sometime in 2016. However, regardless of the standard, schools will still be responsible for defining their approach to professional development according to their own needs (Email from Department of Education, 11/8/15).

2.3.6 United States of America

Individual states govern their own teacher registration or accreditation so there is no uniform requirement, similar to what has been the case in Australia. As an example, New Jersey requires that all teachers submit a Professional Development Plan (PDP) that aligns to the *New Jersey Standards for Professional Learning* with the supervisor assessing progress for individual teachers on an annual basis within the school.

2.3.7 Shanghai - China

Recruitment of teachers in China is not standardised with high competition for positions evident in urban areas while rural areas are often forced to employ 'supply teachers' in the local schools. In large cities, such as Shanghai, teaching is a respected, stable and valued profession. Initial teacher education programs ensures a high calibre of students enter into teaching as a profession. Once in the education system, each new teacher is allocated a mentor for a three-year period who observes and critiques lessons, participates in lesson planning, resource development and examination marking (Centre on International Education Benchmarking [CIEB], nd). Professional development is also an important requirement for all teachers in Shanghai where it is embedded into the job so that teachers spend less than 50% of their working time teaching. It is a requirement that new teachers complete 120 hours of professional development in their first year of teaching then a total of 360 hours in their first five years of teaching. Senior level teachers are

expected to undertake 540 hours on professional development every five years (Centre on International Education Benchmarking [CIEB], nd; Organisation for Economic Cooperation and Development [OECD], 2011).

2.3.8 Summary

Given these international examples it appears that ongoing professional learning is considered an integral part of teacher renewal and professional growth. In each country cited, professional learning is conceptualised as the mechanism for allowing teachers to select those activities that will contribute to their own learning, professional practice, and ultimately school community. In this manner, teachers become responsible for their own professional growth at a time and place that suits their individual needs. This ownership and self-autonomy addresses many of the key issues identifiable in the research regarding the de-contextualised and irrelevant professional development that embodied the traditional professional development experienced by many teachers.

However, given the important role of professional learning it is interesting that with the exception of Scotland as a western country, mandatory hours are generally not required as part of teacher registration or ongoing certification. According to Hendriks, Luyten, Scheerens, Sleegers & Steen (2010), this pattern is also evident in many European countries where there are few incentives to encourage teacher participation in continuous professional development and the penalties for non-participation are non-existent. In contrast to these western experiences, Shanghai as one of the largest cities in China requires high numbers of hours of mandatory professional development to be completed by teachers. The other atypical aspect of the Shanghai example is the immersion of professional development as part of the day-to-day working of the teacher, which highlights the perceived priority of place of this component in this region of China.

The following section provides a summary of the current professional learning requirements in other jurisdictions in Australia as a means of comparison with South Australia. Please note that the information below was extracted from websites or from information in emails sent from the relevant regulatory authorities when details provided on the websites required further clarification.

2.4 The Australian Context

2.4.1 Australian Capital Territory (Teacher Quality Institute [TQI])

Period of teacher registration renewal is every five years. Registered teachers must undertake 20 hours of professional learning (PL) per annum. Teachers can select their own PL but a proportion of it must be from accredited programs with a full list available as a pdf on the website. Teachers are expected to demonstrate a balance with five hours of TQI Accredited PL, five hours of teacher identified PL, and ten hours made up from either category (accredited or teacher identified activity).

The TQI accredits each PL program ensuring it aligns with the career stages of the *Australian Professional Standards for Teachers* (APST) or the *Australian Professional Standard for Principals* (APSP). The application must also include how the PL program links to the relevant standard while explaining how it addresses individual foci (Email received on 10/8/15).

2.4.2 New South Wales (Board of Studies, Teaching and Educational Standards)

To teach in NSW schools, all teachers must be provisionally or conditionally accredited with payment required annually. Once in schools, teachers have five years (if full-time) and seven years (if part-time) in which to attain Proficient Teacher Accreditation. To maintain this level of accreditation, teachers must demonstrate competent teaching practice and complete 100 hours of professional development (PD). This PD must include 50 hours of Quality Teaching Council (QTC) registered PD (i.e., courses accredited by the Board of Studies, Teaching and Educational Standards) while the remaining 50 hours can include teacher identified PD and, if approved, university or TAFE study. Highly Accomplished and Lead Teacher levels of accreditation must also complete 100 hours of PD to maintain these levels of accreditation (Retrieved August 2015 from, http://www.nswteachers.nsw.edu.au/current-teachers/maintain-proficient-teacher-accreditation/).

2.4.3 Northern Territory (Teacher Registration Board of the Northern Territory)

Period of teacher registration renewal is every five years. Teachers are required to undertake 100 hours over five years of professional learning (PL). The Board differentiates between professional development (PD) and professional learning. PD refers to what teachers do and experience that provides the opportunities to enhance professional knowledge, practice and engagement. In contrast, PL describes the growth in knowledge, skills and attitudes that comes from being engaged in professional development activities, processes and experiences i.e., it is about their individual growth as a teacher. All professional learning for teacher registration renewal must align to the APST. It is the responsibility of teachers to explain how their professional learning contributes to their practice against the seven standards and not the specific foci (Email received on 10/8/15).

2.4.4 Queensland (Queensland College of Teachers)

Period of teacher registration renewal is every five years. Registered teachers regardless of full, part-time or contractual positions must complete 20 hours of continuing professional development (CPD) per calendar year. The only exception is for teachers who have taught less than 20 days in the year with no CPD requirement. Professional learning activities are differentiated from tasks and expectations that are part of the normal role of a teacher. Professional learning should include a balance of employer-directed and supported, school-supported, and teacher-identified activities (Retrieved July 2015 from, http://www.qct.edu.au/pdf/CPDFrameworkPolicy_AmendedforAustralianStandards.pdf.

2.4.5 Tasmania (Teachers Registration Board of Tasmania)

Period of teacher registration renewal is every five years. Registered teachers must have engaged in professional development (PD) in the previous five years but there is no mandatory number of hours specified at this stage.

Relevant professional development activities include those activities and practices that contribute to a teacher's professional competence, directly or indirectly to enhance teaching and learning. Currently, teachers are able to select their own PD (Retrieved July 2015, https://www.trb.tas.gov.au/Web%20Pages/About%20Teacher%20Registration.aspx).

2.4.6 Victoria (Victorian Institute of Teaching)

Period of teacher registration renewal is one year. Registered teachers must engage in 20 hours of professional development (PD) per annum that must align to the APST. Providers of PD are not accredited and there is no definitive list of PD stipulated for teachers. In addition, teachers are required to complete 20 days of teaching and have a national police history check (Email received 17/9/15).

2.4.7 Western Australia (Teacher Registration Board of Western Australia)

Period of teacher registration renewal is five years. Registered teachers must undertake 100 hours of continuous professional learning (PL) over this period. Learning activities can be formal or informal from across three domains representing the APST. These include Professional Knowledge (Standards 1 and 2), Professional Practice (Standards 3, 4 and 5), and Professional Engagement (Standards 6 and 7). Teachers can select a balance across these domains to suit their specific PL requirements. Importantly, PL claimed for renewal must be over and above the normal expectations of a teacher's role and responsibilities (including preparation, planning, programing, assessment, and reporting) (Retrieved July 2015 from, http://www.trb.wa.gov.au/SiteCollectionDocuments/Policy%20-%20Professional%20Learning%20Activities%20Policy%20-%20POL9%20v1.PDF).

2.4.8 Summary

The Australian context demonstrates that there is presently inconsistency in the use of the terms, professional development, professional learning and continuing professional development across the different states and territories. While 20 hours of mandatory PL per annum is required in most states and territories, this can vary across the registration cycle (i.e., 30 hours in one year, and 10 in the next). The Australian Capital Territory and New South Wales are the only jurisdictions where programs and courses for professional learning undergo some form of accreditation by the teacher regulatory authorities, with lists of accredited programs available to teachers on the websites. Finally, in all states and territories the emphasis is around teachers selecting professional learning that suits their own needs and those of the school in which they are located. However, some states and territories do require teachers to undertake a proportion of their professional learning across mandatory areas of professional learning (e.g., Australian Capital Territory).

In reviewing the *professions* broadly, continuing professional learning of some kind is mandatory with specific hours or points required for many professions. Importantly though, there is a high degree of autonomy allowing each professional to select courses and programs that address individual career needs. In terms of teacher professional learning, the international examples identified here indicate that while there is an expectation that teachers will undertake professional learning there are in most instances no mandatory hours specified. In contrast, Australia (when compared to its other similar western counterparts) appears to be leading the way with a move to mandatory hours while still allowing teachers to select their own professional learning in areas of interest and need. The result is that teachers can self-regulate and exercise a high degree of professional autonomy around professional learning.

3 Purpose of Evaluation

3.1 Framework - Research Questions

The aim of the evaluation was to collect evidence regarding the impact of professional learning from a large sample of teachers renewing their registration for 2015-2016. It comprised two sections:

1. A review of the professional learning undertaken by teachers as part of the renewal process (required every three years) around the types of activities completed along with links to the *Australian Professional Standards for Teachers* (APST), the impact on their professional growth, and the challenges in meeting this requirement.

2. Provision of feedback to the TRB about the processes used and how these might be enhanced to ensure that the APST attained by the profession are meeting the expectations of the TRB.

3.2 Outcomes and Benefits

The project aimed to support all teachers, whether currently employed in a teaching role or not, to conceive of meaningful professional learning as integral with registration requirements. This project aligns with a broader project of continuing support for the effective implementation of the APST.

The evaluation identified information of direct use to teachers, such as the kinds of professional learning undertaken along with examples of the types of evidence used by teachers to document their learning. Equally important, it provides extensive baseline data to inform the TRB as they interact with other states and territories in meeting the changing requirements around teaching standards at a national level. It also provides the necessary background to support cooperation between the TRB and other educational stakeholders to ensure greater consistency of the professional learning environment, which will ultimately support teachers in moving forward.

4 Research Methods and Analytical Strategy

Underpinning the project was a series of Research Questions that provided the framework for the evaluation - guiding the collection and analyses of data. In order to address these questions, the project design aligned with critical periods in the registration renewal process.

4.1 Framework - Research Questions

The main framing question for the evaluation was:

> *What additional information or support might be provided by the Board in order that teachers address the professional learning requirements into the future?*

To ensure the collection of an appropriate range and depth of data necessary to address the framing question, the following Research Questions targeted specific aspects.

RQ1. What is the nature of the professional learning experiences undertaken by the teachers sampled?

RQ2. What impact did teachers perceive these learning experiences had on their professional growth?

RQ3. To what degree did the professional teaching standards (APST) align with the professional learning experiences reported?

RQ4. How did teachers record and provide evidence of their professional learning? What was the nature of this evidence?

RQ5. What are the key challenges experienced in meeting professional learning requirements?

RQ6. What areas of interest and need are identified by teachers in supporting their professional learning into the future?

RQ7. What was the response to the TRB's communications strategy in disseminating information to teachers in SA around new professional learning requirements?

4.2 Design and Scope of the Evaluation Process

4.2.1 Teacher Sample

According to the Annual Survey of SA teachers (as of 9th February 2015):

- 54% of teachers in SA were employed within a Department of Education and Child Development (DECD) site;
- 25% were employed at a non-Government site; and
- 21% were not employed at an education site (e.g., registered teachers working in the TAFE sector, overseas, on leave, or retired).

In order to optimise representation of approximately 9 210 teachers across these sectors renewing their registration in the 2015-2016 period, 2 254 teachers were selected randomly for inclusion in the evaluation. Given that registration renewal occurred over a number of months, it was decided to collect the data from teachers in batches with the numbers in each varying depending on the renewals processed during a two-week timeframe. Selection of teachers within each batch was achieved electronically through the TRB Customer Relationship Manager (CRM) system using a 1 in 4 ratio. Therefore, every batch of teachers identified for the evaluation represented 25% of the teachers that had renewed their registration in the two-week period prior to their notification.

Importantly, using a random sample ensured an equal chance of inclusion of all renewal applicants while ensuring representation of teachers from:

- Early childhood education, primary and secondary sectors
- DECD, non-government, and non-education employment sectors, and
- Remote, country and city schools or centres.

4.2.2 Project design

The evaluation of teachers comprised three forms of data collection:

- Summaries of teachers' professional learning evidence (mandatory for all teachers identified in the random sample) (*n*=2 092 teacher summaries excluding late submissions);
- An online demographic survey (voluntary for all teachers identified in the random sample) (*n*=1 980 surveys completed); and
- Focus group interviews (voluntary for teachers interested in involvement as indicated on the online survey) (*n*=116 teachers).

Data were collected using two phases in the design.

Phase 1: Once teachers were identified for inclusion in a batch for the evaluation they were notified by email with a window of 28 days to either submit their hardcopy *professional learning summaries,* or ensure that their professional learning data submitted via the online portal was complete and ready for downloading. After the 28-day period, professional learning summaries available through the online portal had the data exported onto a spreadsheet, while data from hardcopy applications were entered manually onto the spreadsheet.

Teachers were also requested to complete an *online survey*. This survey was necessary to collect up-to-date demographic information that is not available through the TRB database (e.g. years of teaching experience). Additionally, items seeking responses regarding the interests and impact of professional learning along with the challenges experienced in meeting these requirements were included to collect data from a large sample of teachers. Responses to the online survey were merged with the professional learning information for each teacher onto a single master spreadsheet.

An overview of the number of teachers renewing their registration and initial details for each batch of teachers evaluated as part of this project is provided in Table 4.1.

Extensions for submission of professional learning summaries were also granted to teachers at the discretion of the Manager Policy and Strategic Development. In the majority of cases these occurred as teachers were overseas or on holidays at the time and unable to access records (i.e., stored on a computer at school). The length of extension varied depending on the circumstances of each teacher's request. In order to ensure that data analysis continued, these teachers were removed from the spreadsheet for the relevant batch and transferred to a 'late' spreadsheet for analysis later.

Table 4.1 Overview of initial evaluation batches

Renewals processed	Sample (*n*)	Notification date	Batch
799	200	2.11.2015	001
1 319	173 173	16.11.2015	002a 002b
1 342	167 168	30.11.2015	003a 003b
1 377	172 172	14.12.2015	004a 004b
1 603	200 200	4.01.2016	005a 005b
1 777	222 222	11.01.2016	006a 006b
544	136	28.01.2016	007
200	49	8.02.2016	008

NB: batches containing ≥ 250 teachers were split to simplify data collation

As part of the process, teachers who did not submit their summaries were referred to the Manager Investigations and the Registrar for consideration. Similarly, those learning summaries that did not demonstrate the benchmark requirements were notified with specific feedback about what to address. Teachers were given 14 days to complete these records and resubmit their summaries. In contrast, completion of the online survey was not a mandatory requirement so was not pursued in the same manner as the professional learning summaries. An overview of the professional learning summaries and online surveys collated and analysed for each batch is provided in Table 4.2.

Table 4.2 Summary of data collated from evaluation participants

Batch	Extensions granted	Incomplete online survey	Returned professional learning summaries	Complete professional learning summaries	Initial Non-response	Final sample (complete record)
001	10	5	6	190	0	185
002a	4	4	6	167	2	163
002b	2	5	1	169	2	164
003a	9	5	7	157	1	152
003b	2	8	2	165	1	157
004a	16	11	14	151	5	140
004b	8	8	9	158	6	150
005a	4	12	4	193	3	181
005b	8	12	6	187	5	175
006a	10	13	9	203	9	190
006b	4	11	7	201	13	190
007	11	13	13	117	8	104
008	12	5	3	34	3	29
Totals	100	112	87	2 092	58	1 980

As reflected in this table, the response rates from teachers within each batch were extremely high. Ultimately, only 12 teachers did not respond to the requests to supply the professional learning summaries in the times provided and so required follow up by the Manager Investigations.

The two most important totals from Table 4.2 for contextualising the results presented in this report are the total number of teachers who submitted learning summaries in the time necessary for analysis (n=2 092, see column 5 above) along with those who submitted both the learning summaries and the online survey (n=1 980, see column 7 above). The reason for the difference between the records is that the online survey was not considered compulsory so was not pursued with teachers after a second reminder was sent.

Phase 2: With analyses underway and patterns emerging, a series of questions were devised for the for the *focus group interviews*. The purpose of these focus group interviews was to explore the professional learning requirements and the processes involved in greater detail with smaller cohorts of teachers. The broad sample for selection for the interviews was undertaken from those teachers who volunteered to be part of the focus groups on the online survey. Approximately 25% of all teachers identified their interest for involvement. Selection for focus groups was based upon their employment status, employer system, gender, and the geographical location of their school or centre to ensure inclusion of early childhood teachers, part-time teachers, temporary relief teachers (TRTs), teachers on leave (i.e., sick, parental), and those not currently teaching across South Australia. While considerable effort was made to invite teachers who were representative of these groupings, the teachers participating in each focus group were those who were actually available on the days that were organised for the interviews. Hence, the sampling used for selection for the focus group interviews was purposive and not random (Wiersma, 1991).

In total 13 focus group interviews were conducted across South Australian locations including the Barossa, Goolwa, Mount Barker, Mount Gambier, Port Lincoln, Port Pirie, Renmark and Whyalla, with five interviews in metropolitan Adelaide at the TRB office. A total of 116 teachers participated in these interviews including phone interviews conducted with two teachers in remote locations who were keen to contribute to the evaluation.

4.3 Data Collection Instruments and Analyses

In this section, the data collection instruments developed and implemented as part of the evaluation are described in detail along with the analyses used to interpret the data.

Please note: A caveat in interpreting and considering the data collected and presented in this report is that teachers were only requested to log 60 hours of professional learning for TRB requirements. Information gained from the focus groups identified that the majority of teachers only completed the required number of hours and did not log all the professional learning undertaken over the three-year period. Furthermore, given the apprehension around the new expectations, most teachers tended to document professional learning they considered would not be questioned e.g., Face-to-face workshops that provided certificates of participation. Hence, the data in this report must be considered in light of this information.

4.3.1 Professional learning summary

The professional learning template summary was operationalised in 2013 so was not specifically produced for this evaluation and was a work already in place and being used by teachers. The template (see Appendix 1) was available on the TRB website as a Word document so that teachers could download it and enter their professional learning manually. Alternatively, similar items were available through the online portal so that teachers could electronically enter individual learning activities. The main variation between the hardcopy template and online portal was in the wording around the way in which teachers aligned their learning to the APST.

In terms of analyses, data on the master spreadsheet were tabulated using formulae so that frequencies could be generated to create graphical representations. However, some items, such as the evidence of professional learning identified by teachers in their summaries, required coding. In order to establish appropriate categories for these items, the coders worked through examples collaboratively to establish intercoder reliability (Wiersma, 1991). This process was used to code the activities teachers provided on the learning summaries using the five themes of professional learning identified on the TRB information sheets. These themes included Face-to-face, Study, Research, Online learning, and Communities of practice. Prior to coding, the team had to decide what professional learning activities might exemplify each of these modes. The coding used along with examples of activities are summarised in Table 4.3. One constraint on the team was that coding was based solely on the titles for activities and/or descriptions provided by teachers in the professional learning summaries.

Table 4.3 Modes and coding used for professional learning activities

Modes	Examples of teacher activities
Face-to-Face	• Conferences • Workshops • Guest speaker at a school staff meeting • 'In house' (school/site) professional development • Training courses • Attending a lecture/seminar • Teacher exchange programs Examples provided by teachers: "*TRB Professional Learning Conference*"; "*Ann Baker Natural Maths workshops*".
Study	• Postgraduate study i.e. toward a qualification • University degrees, TAFE certificate/diploma courses • Study tours Examples from teachers: "*Masters of Education*"; "*Certificate IV in Training and Assessment*"; "*working on PhD*".
Research	• Professional readings (from online articles to peer-reviewed literature) • Self-conducted research (from googling learning resources to a formal research project) Examples provided by teachers: "*Managing Classroom Behaviour*"; "*Search for information about students with autism*".
Online learning	• eLearning modules and online courses • Participating in a webinar or online conference • i.e. not just passive viewing of material but actively completing modules online Examples used by teachers: "*MNT/RAN update certificate*"; "*First Aid theory*"; "*Disability Standards for Education Lessons 1-3*".
Communities of Practice	• Being part of a professional learning team/community (usually teachers in a school partnership who teach the same subject and want to share strategies, resources, ideas etc) • Participating in a group project • Mentoring (e.g. being mentored by a more experienced colleague, being observed by a peer and receiving feedback) Example provided by teachers: "*Professional learning team meeting discussing strategies for dealing with a student with special learning needs*".

4.3.2 Online demographic survey

The online demographic survey (see Appendix 2) collected additional teacher information not available from the TRB data base, to supplement the information from the professional learning summaries (e.g., residential address, employment status). While the initial items were demographic in nature, five items were also included from the *Teaching and Learning International Survey* (TALIS) (Organisation for Economic Cooperation and Development [OECD], 2013). These items extricated information from teachers around their professional learning needs, cost of professional learning, impact of professional learning, and challenges or barriers to completing the professional learning requirements over the three-year period. TALIS was conducted by the OECD in 2008 and 2013 facilitating cross-country comparisons in relation to teacher professional development, systems of feedback, and appraisal of the teaching workforce. Incorporation of these items provided an opportunity to compare the Australian results with the data obtained for the sample of South Australian teachers from this evaluation while ensuring valid items.

Access to the survey was provided via a link that was embedded in the notification email sent to teachers. All data from the surveys was exported to a spreadsheet that was ultimately aligned to the professional learning summaries to provide a complete record for 1 980 teachers.

4.3.3 Statistical analyses

The collated data were analysed using statistics to compare results across the cohorts of teachers to identify significant differences. Independent variables that defined teachers' characteristics considered to be relevant in describing the cohorts of teachers in the sample included employment status, employment setting, employment location, age, and years of teaching. Dependent variables were those that we expected to be influenced by one or more of the independent variables including modes of learning, teaching standards identified, cost of professional learning.

Before analysis, data for each variable were screened systematically to ensure there were no transcription errors or other data quality issues. Frequency distributions were plotted for all variables to illustrate summary statistics (i.e., measures of central tendency and variance) and to detect those dependent variables where inherent structure, such as severe skew or multiple modes, contributed to significant deviation from a normal Gaussian distribution. This potential deviation from normality was also tested formally as described below.

Many of the variables were categorised to facilitate statistical analyses of association among groups of interest (e.g., TRTs compared to secondary teachers). This process also served to reduce 'noise' within the data that was not relevant to the broad trends being sought in the statistical analysis. For a number of variables, responses recorded on Likert scales yielded categorical rather than continuous or interval data.

Deviation from a normal distribution was assessed for each dependent variable using the Shapiro-Wilk test (Shapiro & Wilk, 1965), modified for large sample sizes (Shapiro & Francia, 1972) and supplemented by inspection of quantile-quantile (Q-Q) plots. An assumption of normality underpins the application of parametric tests (e.g., variance or t-tests) whereas non-normal data should be either analysed using less powerful non-parametric tests or suitably transformed to become normal. In most cases, the evaluation data were non-normal with non-parametric statistical approaches selected because the data were often ranked and grouped. This non-normality also meant that using box-and-whisker plots to depict medians and interquartile ranges were more appropriate than plotting means and standard errors to portray differences among groups in their central tendency and variation.

The research questions usually took one of two forms. First, are there differences in the medians (ranked means) of groups of samples for a given variable? Second, is there an association between pairs of variables (often groups of a dependent variable and their association with groups of an independent variable)? The first type of research question was addressed using a Kruskal-Wallis (K-W) test (non-parametric analogue of a one-way analyses of variance) to test the null hypothesis that the medians of all sample groups were equal. Where significant differences in medians were detected, *a posteriori* comparison of medians was performed using Dunn's test (Dunn, 1964) to determine the location of the statistical difference. This test for multiple comparisons was applied because it uses the same rankings as the K-W test as well as the pooled variance implied by the K-W test's null hypothesis to determine which of the sample pairs are significantly different.

The second type of research question was addressed using Pearson's chi-square (χ^2) to test whether unpaired observations on two variables, expressed in a two-way contingency table, were independent of each other (i.e., not associated). This test compares *observed frequency data*, such as counts on nominal scales including employment location or employment status, with *expected values* if the counts data of the

two variables were independent of each other. Large differences between observed and expected values produce high chi-squared scores and a significant probability of some form of association. Although there are many different ways in which expected values can be generated according to which hypothesis is being tested (Fowler, Cohen & Jarvis, 1998), we only tested for significant deviation from independence as a measure of association. One major advantage of chi-squared testing of contingency tables is the capacity to search *within* the table to detect specific combinations where significant chi-squared values indicate some form of association (i.e. deviation from independence).

All univariate statistics were computed using *Statistix 10* (Analytical Software, 2015). Statistical significance was judged at the conventional 5% probability level (i.e., $p<0.05$) (Fowler et al., 1998), although exact *p*-values are presented where appropriate for all statistical tests for full reference.

4.3.4 Focus group interview protocol

A review of the data from the professional learning summaries and online survey identified particular aspects or patterns to explore with teachers in greater detail. During the focus group interviews, a semi-structured interview schedule was used to ensure a degree of consistency in the questions asked across the groups (see Appendix 3). However, probing questions were also included to extract further information when required from the teachers during the interviews (Wiersma, 1991). All interviews were audio recorded with transcripts from the interviews partially transcribed.

The qualitative data were interrogated using content analysis to identify key themes that related to the quantitative data. Excerpts that exemplified either the shared view of teachers in relation to a particular aspect were noted along with those that highlighted alternative experiences or insights. These insights were incorporated into the results where appropriate to ensure that the 'voice of teachers' was included into the evaluation reporting.

The alignment between the Research Questions (identified earlier), a number of specific questions to unpack each of these, the sources of data collected, and the general forms of analyses used for the evaluation are summarised in Tables 4.4-4.10.

Table 4.4 Nature of the professional learning experiences

Specific questions	Data source(s)	Collation
• How did the PL provided by teachers align to the 5 areas of PL specified by TRB? How appropriate were these examples?	• Professional learning summary completed by teachers. • Read through PL events in summary and categorise into the 5 areas.	• Excel spreadsheet • Extract examples of PL for each area used by teachers. (qualitative)
• How many hours were allocated to each of these 5 areas?	• Use PL summary completed by teachers. • PL undertaken identifies hours for each event.	• Excel spreadsheet • Collate hours and represent as a proportion of total number of 60 hours. (quantitative -% graphs)
• What do these allocations of PL look like for different groups of teachers?	• As above. • Align the PL summary with background of different teachers.	• Excel spreadsheet • Compare results above for 'normal' teacher from those on leave etc. (quantitative -% graphs)
• What do the examples of PL look like across the different groups of teachers?	• As above	• Examples they identify • (qualitative)
• What does the balance of PL look like for individuals?	• As above	• Collation of results for individual teachers to represent case studies of PL

Table 4.5 Impact of professional learning experiences on teacher professional growth

Specific questions	Data source(s)	Collation
• What were the major kinds of impact from professional learning evident from teachers?	• Professional learning summary completed by teachers • Online survey • Focus group interviews (taped/ notes taken)	• Collation of these views from the submissions and interviews to identify the main themes emerging from these data (qualitative)
• Could teachers provide examples of changes in their professional practice as a result of the PL undertaken?	• Focus group interviews (taped/ notes taken)	• Identify examples provided by teachers (qualitative)

Table 4.6 Professional teaching standards alignment (APST) with professional learning experiences

Specific questions	Data source(s)	Collation
• What standards are linked to the PL undertaken by teachers?	• Professional learning summary completed by teachers	• Excel spreadsheet • Tally standards identify most and least identified (quantitative)
• Which are the most identified standards? Least identified? • What is the average number of allocations per teacher?	• As above	• As above • Add the number across for each teacher to calculate an average number of allocations (quantitative)
• Appropriateness of these allocations by teachers?	• As above	• Judgement as to whether the PL align to these standards or not (qualitative)

Table 4.7 Nature of evidence of professional learning in teacher summaries

Specific questions	Data source(s)	Collation
• What evidence was most often provided/cited? How clear was this evidence?	• Professional learning summary completed by teachers • Online survey • Focus group interviews (taped/ notes taken)	• Review the descriptions or explanations of evidence provided – identify most common forms – quantify these with frequencies (qualitative/quantitative)
• Was the evidence appropriate for the PL experienced?	• As above	• Judgement by reading the evidence along with the PL experienced (qualitative)
• Is it possible to identify the most useful ways for teachers to document evidence in the future?	• Focus group interviews (taped/ notes taken).	• Identify examples/ideas provided by teachers (qualitative)

Table 4.8 Challenges experienced in meeting professional learning requirements

Specific questions	Data source(s)	Collation
• What were the major challenges for teachers?	• Emails from project officers • Online survey • Focus group interviews (taped/ notes taken)	• Content analysis to identify the key obstacles (qualitative)
• Which groups of teachers experienced the most difficulty? What were their major issues?	• Emails from project officers • Online survey • Focus group interviews (taped/ notes taken)	• Use information above to compare across different groups of teachers to identify key differences (qualitative)

Table 4.9 Areas of interest or need identified by teachers in supporting their professional learning

Specific questions	Data source(s)	Collation
• What are areas of interest? • Were differences identifiable across cohorts of teachers?	• Forms of collated responses provided from group discussions during the teacher conference • Online survey • Focus group interviews (taped/ notes taken) • Facebook	• Content analysis of data collected to identify major areas of interest • Frequency tallied – graphs (qualitative, quantitative?)

Table 4.10 Nature of evidence of professional learning in teacher summaries

Specific questions	Data source(s)	Collation
• What were attendances at the school presentations and conference?	• Attendance locations and numbers of staff	• Number of presentations provided and the number of teachers attending these in total • Number of teachers attending the conference (quantitative)
• What was the feedback from the information sessions provided by TRB to teachers across the state and the one day conference?	• Emails, responses provided by teachers and school senior staff on the day or afterwards. • Focus group interviews (taped/ notes taken)	• Content analysis of the key ideas conveyed in comments received • Numbers of responses received • Additional requests made as a result of presentations/ conference (qualitative, quantitative)
• What was the level of teacher accessibility with the TRB website, online portal, and social media?	• Monitor traffic to the website, along with Facebook and Twitter	• Frequency of participation by teachers on these forms of communication
• What feedback around the auditing and evaluation process was provided by teachers? How might this process be enhanced?	• Comments made on the online survey • Focus group interviews (taped/ notes taken)	• Identify major examples provided (qualitative)

5 Results and Discussion

In this section of the report, the results from a 25% sample of teachers who renewed their registration at 31st January 2016 are presented and discussed using the following nine sub-sections.

5.1 Teacher sample – Demographics

5.2 Audit of professional learning summaries

5.3 Nature of the professional learning experiences

5.4 Impact of professional learning experiences on teacher professional growth

5.5 Professional teaching standards alignment with professional learning experiences

5.6 Nature of evidence of professional learning summary

5.7 Challenges experienced in meeting professional learning requirements

5.8 Areas of interest and need identified by teaching in supporting their professional learning

5.9 Response to the TRB's communications strategy around professional learning requirements

In 5.1 an overview of the demographical information of teachers comprising the sample is presented demonstrating the diversity and representation of the sample. Following in 5.2 is a summary of the insights gained from the audit of teachers' professional learning summaries, which was undertaken by staff of the TRB as part of the evaluation.

In contrast, sub-sections 5.3-5.9 discuss the data in relation to the research questions identified in Section 4 of this report. The statistical tests applied to identify significant statistical differences ($p<0.05$) across the data are discussed, with key statistics cited where *in situ* with full details provided in Appendix 4.

As a reminder, the total number of teachers providing the professional learning summaries was 2 092 with 1 980 completing both the online surveys and professional learning summaries. The two totals are identified where relevant throughout this section in relation to the data.

5.1 Teacher Sample - Demographics

In a Nutshell

The demographic data presented here indicates that the evaluation sample adequately represented each of the key cohorts of teachers registered currently in South Australia. The statistical analyses undertaken on specific data identified significant differences for years of teaching across location, years of teaching in relation to employment setting, and years of teaching across employment status. Hence, this suggests that years of teaching rather than the age of teachers is a more critical variable to include in analyses of the evaluation data.

Overall, the evaluation included data from a wide diversity of teachers. In terms of age, all groups currently on the register in South Australia were represented (see Figure 5.1). While age groups 70-74 and 75-79 appear as '0', this is only because the results are presented as percentages. In reality, four teachers

comprised the 70-74 and one teacher the 75-79 categories. As for gender, 75% of the entire sample were female with the remaining 25% being male. Regarding the category of registration, approximately 89% of teachers were fully registered, 10% provisionally registered with 1% collectively including teachers holding provisional restricted registration, provisional registration with conditions, and restricted registration.

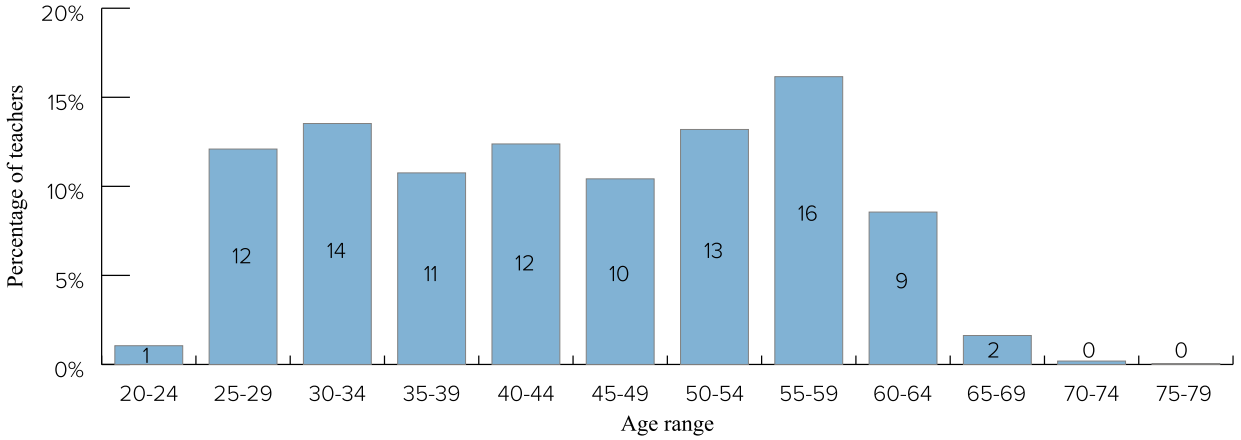


Figure 5.1 Age of teachers as a % of the total number evaluated (*n*=2 092)

Teacher age across the geographical location of the schools/centres in which they teach is provided in Figure 5.2. As observed here, 73% of teachers identified as being in schools/centres located in and around the Adelaide Metropolitan region, 24% in Country areas, with 1% in Remote locations. Additionally, 1% of teachers were teaching Interstate (i.e., ACT, NSW, NT, Qld, Victoria, WA) with 1% Overseas (i.e., Ukraine, China, UK, Europe, Canada, and SE Asia). The teachers in these school/centre locations accounted for 92% of the 1 980 teachers completing the online surveys with the remaining 8% of the evaluation sample (i.e., 150) identifying as '*Not currently teaching*'. Note that this latter group is not included in Figure 5.2.

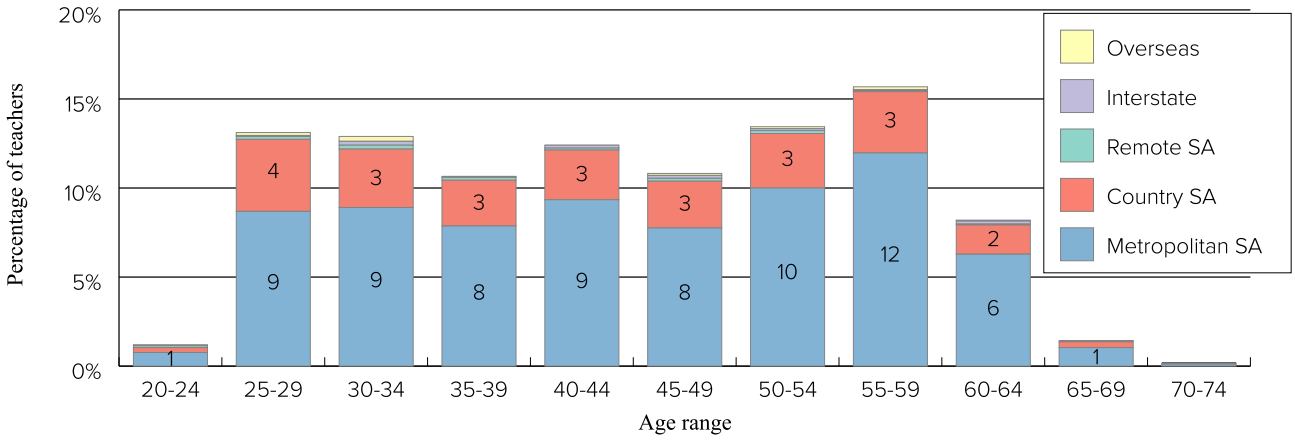


Figure 5.2 Representation of teachers comprising the evaluation in relation to age and employment location (*n*=1 830, excluding Not currently teaching)

As observed here, the distribution of age appears consistent across these geographical locations. To test whether mean rank for age differed significantly by employment location an initial screen of age found that it was normally distributed (W=0.942, *p*=0.000) with a Levene's test identifying that the variances in means were homogenous (F=0.43, *p*=0.783). A one-way analysis of variance indicated a marginally significant difference across employment location (F=2.69, *p*=0.03). However, because of the low

significance, a post hoc test did not identify any significance suggesting that there is no mean difference among the mean rank ages. To test whether mean rank age is associated with employment location, a Pearson's chi-square (χ^2) identified no significant difference (overall chi-square 43.23, p=0.335, df=40) indicating that there is no association between age and the employment location in the sample of teachers comprising the evaluation. These results are atypical with higher proportions of younger and more inexperienced teachers often likely to be teaching in country and remote locations (Lyons, Cooksey, Panizzon, Parnell & Pegg, 2006). However, the spread demonstrated here indicates that the sample includes all demographic groups across locations ensuring adequate representation for these variables.

Another key variable to consider for teachers is the total years of teaching as collected through the online survey. A summary of these data along with their current school location is presented in Figure 5.3. Approximately 11% of teachers comprising the evaluation sample were early career teachers with 0-3 years of experience, 13% with 3-6 years, 12% with 6-9 years, 18% with 9-15 years, and 47% with more than 15 years of teaching. Again, it is clear from these data that there is representation of teachers across Metropolitan and Country locations (with percentages of the sample total shown below as labels). In contrast, the representations of teachers in Remote schools/centres in SA, Interstate or Overseas were extremely low (i.e., comprising 3% of the sample collectively).

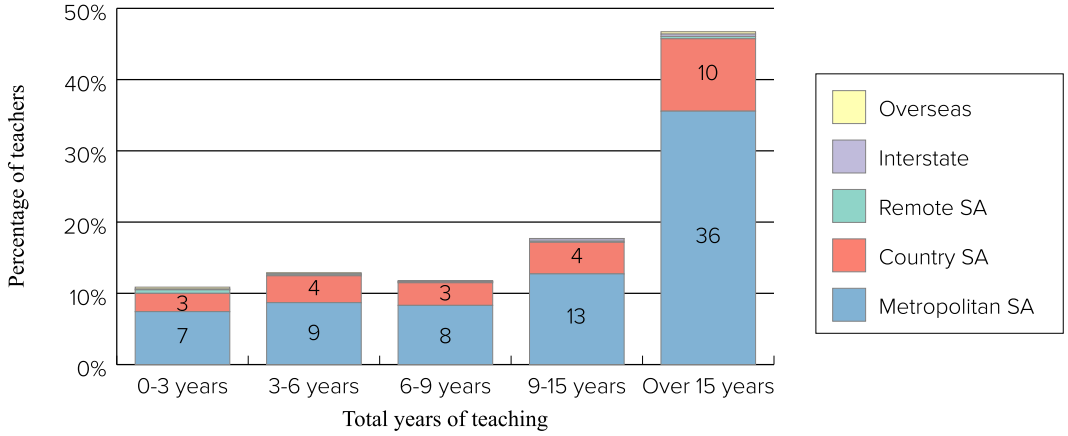


Figure 5.3 Years of teaching across employment locations in the sample (n=1 830 excluding Not currently teaching)

A Kruskal-Wallis (K-W) test for statistical significance found that the mean rank for years of teaching varied across employment location (K-W=21.93, p=0.0002). A posteriori Dunn's test indicated that the median rank years of teaching was higher in Metropolitan locations when compared to Remote locations supporting previous studies in the area (Lyons *et al.*, 2006). A Pearson's chi-square (χ^2) identified an overall value of 39.28, p=0.0010, df=16 demonstrating a significant association (see Appendix 4 for details). In particular, this result indicated that teachers with 0-3 years of teaching are more likely to be teaching in Remote schools/centres and Overseas than the other rank years of teaching.

A detailed summary of the demographics of the total sample of teachers participating in the evaluation are provided in Tables 5.1-5.4 using the employment setting (i.e., Long day care, Pre-school, Primary, Middle, or Secondary) and employment status (Permanent FT, PT, FT contract, PT contract, Short-term contract, Temporary Relief Teacher [TRT]) of teachers. These tables collate the data across a range of factors so that details for the specific cohorts of teachers are available. Note these tables do not include teachers Not currently teaching.

In Table 5.1, the employment setting of teachers is summarised in relation to the geographical location of schools in which teachers were employed. These data are presented to facilitate the extraction of information for each particular cohort of teachers comprising the evaluation sample in two ways: (i) the proportion of teachers in each cohort teaching in various geographical locations; and (ii) the representativeness of these cohorts of the total sample within each geographical location. For example, in Table 5.1, 67% of teachers who identified as being in pre-school sites were located in Metropolitan SA (view the row) compared with 30% in Country schools and 2% in Remote schools. The actual number of teachers in the sample is available in each of these cells in bold. However, in terms of the total number of teachers comprising the evaluation located in Metropolitan SA schools, pre-school teachers comprised 5% (view the column for Metropolitan SA) of the overall sample.

Table 5.1 Current teaching location and employment setting of evaluation sample (n=1 830)

			School location of participants					
			Metropolitan SA	Country SA	Remote SA	Interstate	Overseas	Grand Total
Employment Setting	Long day care	Count	15	4	0	0	0	19
		% of row	79%	21%	0%	0%	0%	100%
		% of column	1%	1%	0%	0%	0%	1%
	Pre-school	Count	74	33	2	1	0	110
		% of row	67%	30%	2%	1%	0%	100%
		% of column	5%	7%	9%	6%	0%	6%
	Primary	Count	705	228	14	8	11	966
		% of row	73%	24%	1%	1%	1%	100%
		% of column	53%	52%	61%	47%	61%	53%
	Middle School	Count	105	45	2	1	2	155
		% of row	68%	29%	1%	1%	1%	100%
		% of column	8%	10%	9%	6%	11%	8%
	Secondary	Count	432	131	5	7	5	580
		% of row	74%	23%	1%	1%	1%	100%
		% of column	33%	30%	21%	41%	28%	32%
Grand Total		Count	1 331	441	23	17	18	1 830
		% of row	73%	24%	1%	1%	1%	100%
		% of column	100%	100%	100%	100%	100%	

These data indicate that in total 1 331 teachers were located in Metropolitan schools, 441 in Country schools, 23 in Remote schools, 17 were located interstate while 18 were overseas. Considered in relation to employment setting, 19 teachers were in Long day care (childcare) sites/schools, 110 were in Pre-schools, 966 were Primary teachers, 155 identified as Middle school teachers, and finally 580 were Secondary teachers. The only figure that appears low in the sample is for Long day care, however, the requirement for registered teachers in these centres/sites is relatively new for South Australia so there are not a large number of these teachers on the register currently.

Employment setting was considered in relation to years of teaching to identify any differences across these variables (Figure 5.4). These data are presented as percentages produced by dividing the number of teachers in a particular employment setting by the total number of teachers in the sample (1 830). A Pearson's chi-square (χ^2) found a highly significant association (overall chi-square 61.98, p=0.0000, df=20) between years of teaching and employment setting (details provided in Appendix 4). The result identifies that more teachers than expected were observed in Pre-school and Middle school with 3-6 years

of teaching, Primary schools with 6-9 years of teaching, and Secondary schools with over 15-years of teaching. Alternatively, fewer teachers than expected were observed in Secondary schools with 6-9 years of teaching and Middle school with over 15-years of teaching.

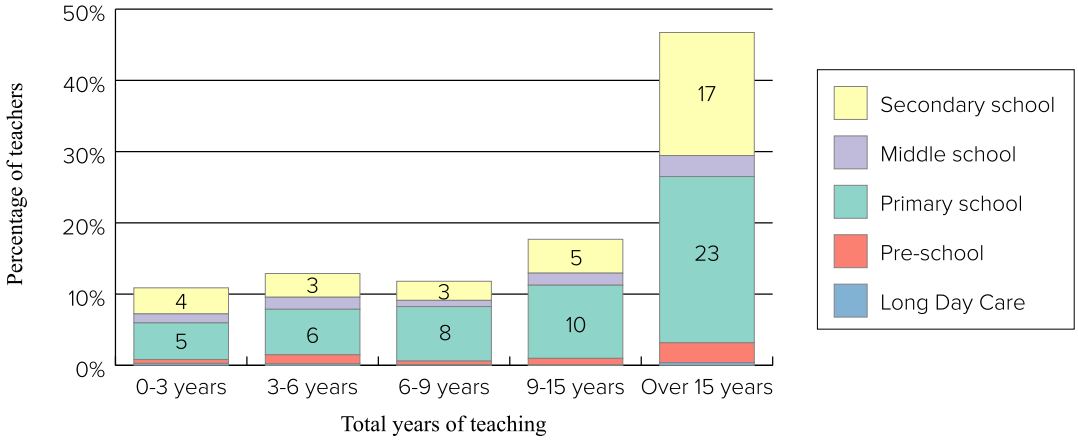


Figure 5.4 Years of teaching across employment setting in the sample (*n*=1 830 excluding Not currently teaching)

Another way of viewing all these data is in relation to the employment status of teachers (Table 5.2) across geographical location. Collating the data in this manner allows comparisons depending on whether teachers are employed permanently (various degrees of this), on contracts (i.e., Full-time, Part-time or Short-term), or as TRTs. As an example, 76% of teachers who identified as being employed as TRTs were located in Metropolitan SA (view the row) compared with 20% in Country schools and 1% in Remote schools. In terms of the total number of teachers comprising the evaluation located in Metropolitan SA schools, TRTs comprised 8% (view the column for Metropolitan SA) of the sample.

As observed in Table 5.2, 893 teachers were Permanent FT (>90%), 306 were Permanent PT (51-90%), 59 were Permanent PT (< 50%), 252 were on a FT contract, 134 were on a PT contract, 37 were on Short-term contract with 149 teachers employed as TRTs. Hence, it appears that the evaluation sample does represent the various cohorts of teachers on the current South Australian register of teachers.

Table 5.2 Current teaching location and employment status of evaluation sample (n=1 830)

			School location of participants					
			Metropolitan SA	Country SA	Remote SA	Interstate	Overseas	Grand Total
Employment Status	Permanent FT (over 90%)	Count	639	228	12	8	6	893
		% of row	72%	26%	1%	0.5%	0.5%	100%
		% of column	48%	52%	52%	47%	35%	49%
	Permanent PT (51 -90%)	Count	240	60	3	2	1	306
		% of row	78%	20%	1%	0.5%	0.5%	100%
		% of column	18%	14%	13%	12%	5%	17%
	Permanent PT (<50%)	Count	45	14	0	0	0	59
		% of row	76%	24%	0%	0%	0%	100%
		% of column	3%	3%	0%	0%	0%	3%
	FT contract	Count	165	69	6	3	9	252
		% of row	65%	28%	2%	1%	4%	100%
		% of column	13%	15%	26%	17%	50%	14%
	PT contract	Count	98	34	1	1	0	134
		% of row	73%	25%	1%	1%	0%	100%
		% of column	7%	8%	4.5%	6%	0%	7%
	Short-term contract	Count	31	4	0	1	1	37
		% of row	83%	11%	0%	3%	3%	100%
		% of column	2%	1%	0%	6%	5%	2%
	TRT	Count	113	32	1	2	1	149
		% of row	76%	20%	1%	2%	1%	100%
		% of column	9%	7%	4.5%	12%	5%	8%
Grand Total		Count	1 331	441	23	17	18	1 830
		% of row	73%	24%	1%	1%	1%	100%
		% of column	100%	100%	100%	100%	100%	100%

As provided earlier, these data can also be viewed in relation to years of teaching (see Figure 5.5). These data are presented as percentages so can be read in a similar manner to Tables 5.1 and 5.2. A Pearson's chi-square (χ^2) found a highly significant association (overall chi-square 408.65, p=0.0000, df24) between years of teaching and employment status (details provided in Appendix 4). The key result highlighted here relates solely to 0-3 years of teaching. Fewer teachers than expected are employed as Permanent FT teachers (>90% and 51-90%) while more teachers than expected were employed on FT, PT and Short-term contracts.

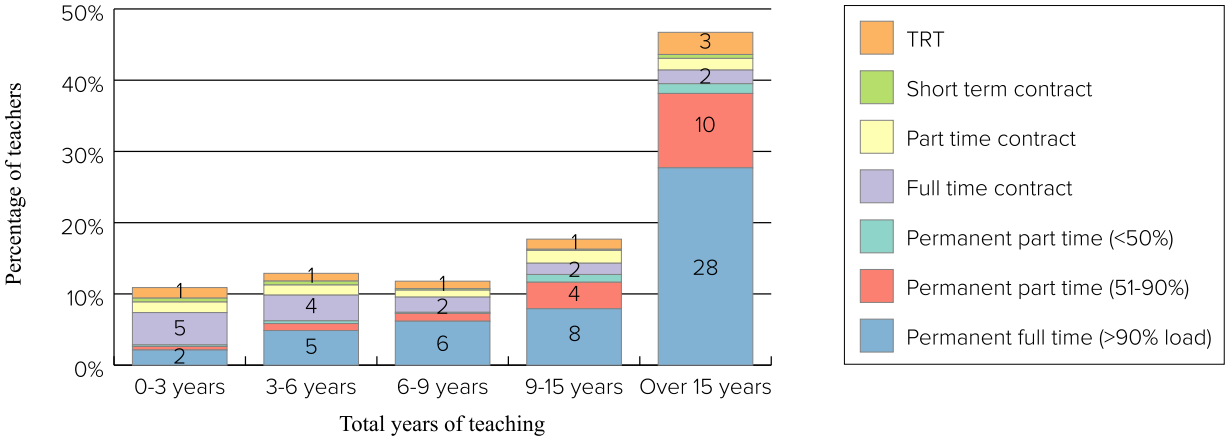


Figure 5.5 Years of teaching across employment status in the sample (*n*=1 830 excluding Not currently teaching)

The other important cohort in the evaluation sample that have not been discussed in these tables is registered teachers who identified as Not currently teaching. In total, 150 teachers accounting for 8% of the total sample aligned to this group (see Figure 5.6). As viewed below, using labels above each column, 3% of teachers identified as retired, 9% as employed in universities, 9% on career break (i.e., maternity leave, child-rearing) and 9% on secondment in other positions. Approximately 17% identified as being on extended leave (i.e., personal illness or caring for ill family) while the largest proportion 53% indicated that they were not seconded but had moved to alternative employment to teaching even though they maintain their registration. Examples of the positions identified by these participants included Consultant for CEO, Education Director, Cancer Council SA, social worker, Church Ministry to Children.

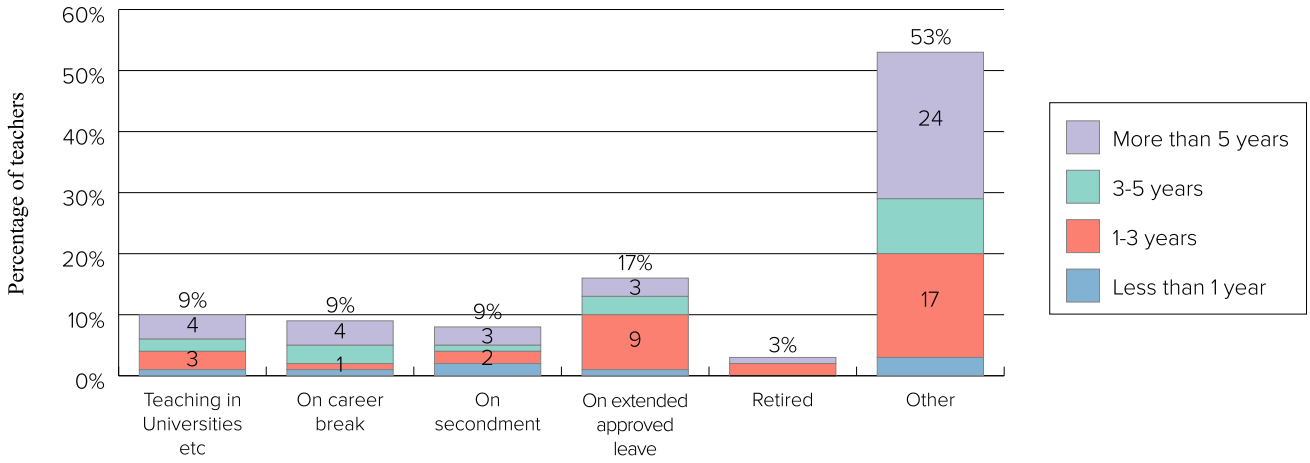


Figure 5.6 Teachers *Not currently teaching* and years in this position (*n*=150)

Additionally, this figure provides the number of years that teachers were in these positions. While the actual proportions for each of the categories is not labelled, it appears that quite a number of teachers have been in these positions for more than one year with many over the 5-year mark.

An important component to consider with this particular demographic is gender. A further breakdown of these data indicate that females account for 85% of the total compared to males (15%) (Figure 5.7). The two options that are worthy of further comment are '*On career break*' and '*On extended approved leave*' as these are likely to include teachers on maternity leave, child-rearing or those on leave due to personal illness or those of family (e.g., partner or children). The importance of recognising the gender

representation here is that any changes in professional learning requirements that affects teachers in this category is going to significantly impact females especially if the representation of this sample is any indication of the broader register of teachers.

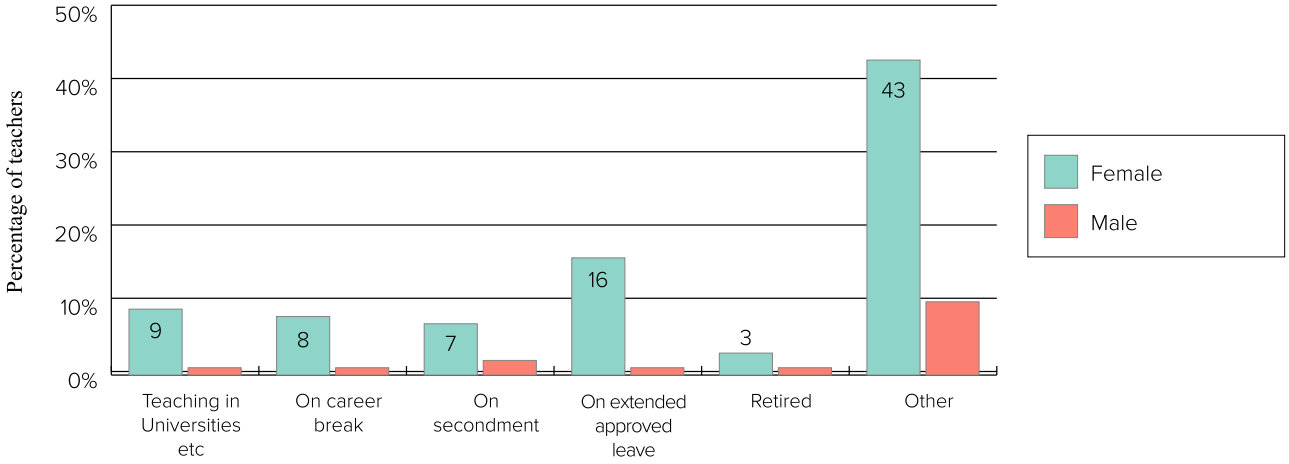


Figure 5.7 Teachers Not currently teaching in relation to gender (*n*=150)

The data so far has explored representation for the total sample for which professional learning summaries and online survey responses were available. However, it is possible to narrow the data to consider teachers in South Australian schools/centres only, *n*=1 795 (i.e., excluding Interstate, Overseas, and Not currently teaching). Table 5.3 summarises teacher employment setting with employment sector in the same way as the tables above. As viewed in this table, 1 112 (i.e., 62%) of teachers evaluated were employed in schools of the Department for Education and Child Development schools (DECD), 335 (i.e., 19%) by the Association of Independent Schools of SA (AISSA), and 278 (i.e., 15%) by Catholic Education South Australia. In addition to these major employers, 4% of teachers identified '*Other*' on the survey, which included positions as "*private instrumental music teachers*", or employment in "*not for profit day care centres*".

In considering these data, it is worth noting that the majority of teachers in Long day care centres (i.e., 85%), are not employed by one of the key sectors in South Australia but by private providers.

Table 5.3 Employers of South Australian teachers across employment setting (*n*=1 795)

			Employer of participants				
			Department for Education and Child Development	Catholic Education SA	Association of Independent Schools of SA	Other	Grand Total
Employment Setting	Long day care	Count	1	0	2	16	19
		% of row	5%	0%	10%	85%	100%
		% of column	0%	0%	0%	23%	1%
	Pre-school	Count	88	3	9	9	109
		% of row	81%	3%	8%	8%	100%
		% of column	8%	1%	3%	13%	6%
	Primary	Count	621	156	143	27	947
		% of row	66%	16%	15%	3%	100%
		% of column	56%	56%	43%	38%	53%
	Middle school	Count	65	31	49	7	152
		% of row	43%	20%	32%	5%	100%
		% of column	6%	11%	15%	10%	8%
	Secondary	Count	337	88	132	11	568
		% of row	59%	15%	24%	2%	100%
		% of column	30%	32%	39%	16%	32%
Grand Total		Count	1 112	278	335	70	1 795
		% of row	62%	15%	19%	4%	100%
		% of column	100%	100%	100%	100%	100%

Still considering the main employer sectors, these data can be also collated around the employment status of teachers (Table 5.4).

Table 5.4 Employers of South Australian teachers across employment status (*n*=1 795)

			Employer of participants				
			Department for Education and Child Development	Catholic Education SA	Association of Independent Schools of SA	Other	Grand Total
Employment Status	Permanent FT (over 90%)	Count	539	132	181	27	879
		% of row	61%	15%	21%	3%	100%
		% of column	48%	47%	54%	39%	49%
	Permanent PT (51-90%)	Count	162	58	65	18	303
		% of row	53%	19%	22%	6%	100%
		% of column	15%	21%	19%	26%	17%
	Permanent PT (<50%)	Count	24	11	19	5	59
		% of row	41%	19%	32%	8%	100%
		% of column	2%	4%	6%	7%	3%
	FT contract	Count	174	33	30	3	240
		% of row	72%	14%	13%	1%	100%
		% of column	16%	12%	9%	4%	13%
	PT contract	Count	83	26	19	5	133
		% of row	61%	20%	15%	4%	100%
		% of column	7%	10%	6%	7%	8%
	Short-term contract	Count	21	6	3	5	35
		% of row	60%	17%	9%	14%	100%
		% of column	2%	2%	1%	7%	2%
	TRT	Count	109	12	18	7	146
		% of row	75%	8%	12%	5%	100%
		% of column	10%	4%	5%	10%	8%
Grand Total		Count	1 112	278	335	70	1 795
		% of row	62%	15%	19%	4%	100%
		% of column	100%	100%	100%	100%	100%

5.2 Audit of Professional Learning Summaries

In a Nutshell

The audit of 2 092 professional learning summaries highlighted a number of issues with the learning activities included by many teachers, such as the:

- Inclusion of inappropriate activities;
- Inclusion of teachers' interests or hobbies that did not actually align to the APST;
- Provision of vague descriptions of the activities undertaken including acronyms that were not easily recognisable;
- Lack of clarity regarding the dates and time commitments for activities;
- Unclear reference to the APST with a lack of annotation as to how the activities helped meet the standards; and
- Lack of evidence provided in summaries.

A clear area of confusion displayed in a proportion of these summaries was a lack of understanding between what constituted professional learning and professional practice (i.e., core roles and responsibilities expected of teachers, such as preparation, planning, programming, assessment and reporting). While some of this confusion may have been due to the differing expectations between TRB and employer requirements around professional learning, the findings of this audit identify that there is some work to do in supporting teachers differentiate between professional practice and learning.

The professional learning summaries were a key source of data for the evaluation. In total 73% of teachers recorded at least 60 hours of professional learning on the online portal. To enter information teachers had to provide:

- Dates that professional learning activities occurred;
- Descriptions of professional learning;
- Hours for each activity;
- APST addressed by the learning activities; and
- Evidence of professional learning.

The remaining teachers either downloaded the template available on the TRB website or developed their own templates. There was an expectation that the components identified above be included in the submitted summaries. Interestingly, a number of these submissions were handwritten and sometimes difficult to read by the team trying to enter the data manually onto a spreadsheet. However, alternative mechanisms for logging professional learning were also evident, such as an example of a teacher who provided a link to a private blog that discussed all the learning activities and included examples of the evidence collected.

As might be expected, some teachers were more explicit in their explanations regarding their professional learning experiences than others. With this range of diversity evident, a benchmark for 2015-2016 was established given it was the first year in which an audit of learning had been undertaken. Summaries not demonstrative of this benchmark were returned to teachers for modification and/or further clarification with an extension of time for completing this task provided.

A number of key issues emerged during the audit process of the learning summaries by the project team. The issues were:

1. Inclusion of inappropriate activities in the summaries that were not demonstrative of teacher professional learning (see 5.2.1);
2. Inclusion of teachers' interests or hobbies in the summaries that did not actually align to the APST (see 5.2.2);
3. Provision of vague descriptions of the professional learning activities undertaken, which often included acronyms that were not easily recognised by others making it difficult at times to gain an insight as to the nature of the activity (see 5.2.3);
4. Lack of clarity in relation to the dates and time commitments involved in undertaking the activities (5.2.4);
5. Ambiguity around the formatting or processing of the learning summaries (5.2.5);
6. Emergence of 'shades of grey' areas between professional learning and professional practice (5.2.6);
7. Unclear reference to the APST in the majority of cases with only a few teachers annotating how the activities actually helped them to meet the standards identified in the learning summary (see Section 5.5); and
8. Lack of evidence provided by teachers in their summaries (see Section 5.6 later in report).

Insights gained from the Focus group interviews that help to explain some of the audit findings presented here (5.2.8) are also included.

5.2.1. Activities not demonstrative of professional learning

The most common issue with the professional learning summaries was the inclusion of activities not demonstrative of teacher professional learning. Examples of activities from learning summaries are detailed below with direct extracts from summaries identified in italics. In some cases, discounting these activities reduced the total number of hours of professional learning to less than 60 hours, which required additional follow up by the team with the teachers involved.

5.2.1.1. Activities core to a teacher's professional work

- Actual classroom teaching e.g. "*preparation and delivery of Stage 1 English course*".
- Reading the curriculum to write units, plans, or programs of work.
- Verbal reports by a TRT to the regular classroom teacher about student progress and behavioural issues, the marking of student work, and dialogue undertaken with other teachers while teaching.

- Looking up resources or creating worksheets and assessment pieces for use in the classroom e.g., 19 hours allocated to resource development, "*I have a collection of articles which I have saved in pdf format as potential articles for Issues Investigations with students*".
- Working through a topic in preparation for teaching e.g,. "*Looked up YouTube videos on how to do fractions and watched them the next day*".
- Setting up a learning area, decorating the classroom, preparing an activity e.g., "*setting up equipment for science week experiments*".
- Familiarisation with students, their needs and past performance e.g., "*looking over photo list of students in my class and noting any special needs recorded*".
- Presence at school open nights and parent-teacher interviews.
- Contacting parents to discuss behaviour and/or learning needs of their children.
- Devising student individual learning plans.
- Subject, career or general counselling meetings with students.
- Report writing, marking, entering grades on the student system, and submitting students' work to SACE for moderation.

5.2.1.2. Involvement in external assessment

- SACE/IB examination marking or moderation of students' work.
- NAPLAN marking.
- Supervising the markers.
- Writing examinations, assessment criteria, or curriculums.
- Competition grading e.g., Australian Maths Competition, judging for art/history prizes, being on the audition panel for Adelaide Youth Orchestra.

5.2.1.3. Attendance at meetings without clear professional learning outcomes identified

- General staff meetings i.e., administrative aspects at the school/site.
- Writing the school newsletter.
- Membership of a School Board or Governing Council and attending their meetings.
- Working in the role of a secretary for a committee, such as a School Board.

5.2.1.4. Mentoring

- Working one-on-one with a student after school.
- Tutoring external students (including adults who speak English as a second language).
- Supervising a pre-service teacher.

- Giving feedback and resources to other teachers or conducting their performance review.
- Supervising in a school boarding house.
- Coaching a sports team (school or community).

5.2.1.5. Delivery of professional learning to others

- Facilitating staff training sessions at a school, being the school's professional development coordinator e.g., "*Planning and organising a session showing staff how to use the coffee machine*".
- Delivering a lecture to students each year at a university.
- Presenting at conferences.
- Conducting workshops or information sessions for an organisation e.g., "*AEU*".
- Preparing PowerPoint slides and speech notes for a presentation.
- "*Preparing and packing goodie bags*" for attendees at a conference.

5.2.1.6. Administrative aspects

- Learning the online process to claim payment for supervision of pre-service teachers.
- Training in how to access work email remotely.
- Being on an interview panel.
- Training around strategies for applying for jobs.
- Time spent writing a Personal Statement (a cover letter used to apply for DECD jobs).
- Time spent recording professional learning hours on the portal or template.

5.2.1.7. School out-of-hours activities

- Accompanying students on school excursions e.g., "*migration museum*", "*art gallery*", "*class trip overseas*".
- Attending school camps.
- Supervision of students' extra-curricular activities e.g., "*school sports day*", "*chess club*", "*accompanying students to an event where they are volunteering*".
- Participation in a school performance e.g., "*constructing children's hula hoops and coaching them for shows*", "*conducting the choir*", "*playing in the school band*", "*writing and directing a class or school play*".
- Playing for the school's sports teams e.g., "*participation and training in school's National Basketball Championships*".
- Attending school events e.g., "*carnival*", "*open night*", "*compulsory school mass on a Sunday*".

- Setting up displays e.g., "*displayed students' work at Carnevale festival*", "student SACE art work in the gallery", "*taking students to exhibit at the Royal Show*".
- Attending ceremonies, such as "*Book Week*" opening dinner or a "*SACE merit ceremony where former students receive an award*".

5.2.2. Interests and hobbies included without clear links to APST

As with the examples above, the following activities are difficult to align to the APST. While some of these items may constitute meaningful professional learning for the teacher, the link to the teacher's learning and the APST was not clear.

- Overseas travel e.g. spending time in Italy for "*cultural immersion*" (several teachers did this), a cruise of the Pacific that heightened teacher's awareness of "*how our Asian neighbours live*", "*Melbourne trip*" with no reference to what occurred over there or how it is relevant.
- Weekly practice and performance in a "*barbershop chorus*", participating in a "*folk singing group*".
- Attended a "*healing expo*", "*watched YouTube videos on sleep hypnosis*".
- Going to numerous art exhibitions, concerts or performances.
- Visits to points of interest e.g. "*Whispering Wall*", "*Naracoorte Caves*", "*Botanic Gardens*", "*Adelaide Zoo*".
- Reading fictional novels – one teacher counted 350 hours of professional learning stating this generally "*increased their knowledge of literature*".
- Watching movies or TV programs e.g. viewing Australian films, such as Storm Boy and Rabbit Proof Fence to gain a greater "*respect for Aboriginal culture*", a mathematics/technology teacher who watched a documentary about the arrival of the First Fleet, watching Master Chef to gain ideas for class cooking.
- Reading the newspaper or watching the news.
- General volunteering e.g., "*volunteer work in the community*", "*planning community program for volunteering with Rotary Club*", "*tree planting*", "*Catholic youth festival volunteer*".
- Hosting or attending a quiz night.
- Completing a course or certification in a topic that does not appear to be relevant e.g., "*Responsible Service of Alcohol*", "*cheese making*", "*master tree-grower's training*", learning a language without intention to teach it (e.g., for interest or travel purpose), "*Bachelor of Nursing*", or "*Business management*".
- Following accounts on social media e.g., Twitter, Pinterest.
- "*Developing an application*" while not providing the application or describing its purpose
- "*Participating in case studies*", "*answering surveys*", or "*giving interviews to university students*".

- Industry experience e.g., "*work placement in an aged-care home to meet requirements for nursing qualification*".
- Attending a school activity or excursion as a "*volunteer*" (e.g., perhaps as a parent helper).
- Counting accommodation and travel time to and from professional learning activities e.g. "*driving to Adelaide from residence in Coober Pedy*", "*flights and nights stayed for interstate conferences*" (i.e., counting 48 hours for a 2-day conference rather than 16 hours for the actual time spent at the conference).
- "*Preparing a presentation to the School Board for funding to take students on a trip to Italy*", or "*preparing a slideshow to justify why the school should continue teaching French as the LOTE*".

5.2.3. Vague descriptions of learning activities

Part of the issue with some of the activities identified above is that without additional clarification the reader must judge the relevance based upon the brief learning activity description provided by the teachers.

- One-word items or the use of acronyms e.g., "*Literacy*", "*WAVE Meeting*" or "*CBPS SFD*" with no further description or APST noted.
- Many teachers recorded numerous generic items e.g., "*Pupil free day*", "*Staff T&D*", "*Staff meeting*" but did not explain what was covered during these sessions.
- Generic long-term entries e.g., "*School-based PD 2014*", which may have covered 40 hours of professional learning activities over a whole year but did not specify what was actually undertaken over the time periods.
- Name of the training provider or venue provided without describing what the actual learning activity comprised.
- Entry of "*Professional reading*" or just stating "*various titles*" without identifying what was actually read; "*Report Writing*" or "*Australian Curriculum*" made it difficult to distinguish whether the teacher was counting time spent actually doing their core work, or undertaking professional learning on that topic to inform their own practice.

5.2.4. Lack of clarity around dates and times for learning activities

Observed less frequently, some teachers provided vague references to the times involved with their activities making it difficult to quantify the 60 hours of required professional learning.

- "*2015*" or "*October*" or "*a couple of days in Term 3 and 4*", "*spare time*".
- Activities "*ongoing*" or a "*study program that started in 2010*" without clearly specifying how many hours was completed in the current registration term.
- Some dates or times not correct e.g., "*3 x 7-hour activities*" on the same day is unlikely.
- Incorrect calculations e.g., "*8 x 20 minute activities*" counted as 4 hours total.

5.2.5. Ambiguity around the formatting or processing of the learning summaries

As teachers were not required to use the online portal to submit their summaries the team received a number of hardcopy summaries.

- Handwritten summaries were frequently illegible with asterisks or arrows directing a reader to the backs of pages to find missing information.
- A number of these summaries were written as letters describing anecdotal aspects about their teaching experience over the last few years and what they had learned e.g., "*this school had many students with challenging behaviours*". However, they did not contain details or times as to what professional learning was completed and there was usually no reference made to the standards or any evidence documented.
- Writing a comment such as "*see attached*" or "*refer to notes*" with no additional information provided including evidence and links to the APST.

5.2.6 'Shades of grey' – differentiating professional learning from practice and interest

In some instances some of the professional learning activities bordered on being professional practice or personal interests so that further information was required from the teacher to clarify whether the activity was a learning opportunity that actually increased their capacity as a professional. Examples included:

- Defining the difference between time spent doing core work and *learning about* ways to do core work e.g. time spent looking up resources to use with students as opposed to attending a workshop where the presenter gave teachers new resources, ideas and pedagogies.
- A drama or music teacher attending numerous performances where there was the opportunity for professional learning while being easily identified as professional interest.
- English teacher reading general novels.
- Science teacher going on conservation park tours or watching documentaries.
- LOTE teachers reading/viewing/conversing in their chosen language for practice.
- Art teachers visiting gallery exhibitions and making their own art pieces from the experiences.

One component that was not completed adequately in the majority of cases was the annotation about how the learning activities actually addressed the APST. While this required just a sentence in areas where the professional learning was straight-forward, 1-2 additional sentences were often needed in areas, such as those identified above, to differentiate professional learning from professional practice and personal interests. For example, "*planning, preparation and reading of curriculum documents*" is defined explicitly by the TRB as core work that does not usually count as professional learning. However, teachers (e.g., TRTs) who included school planning days or becoming familiar with the new Australian Curriculum were accepted because they did explicate the professional learning involved in these activities given that they must be prepared to teach across a range of learning areas as part of their work.

5.2.7 Broader issues around the processing of summaries

- Teachers forgetting to log back into online portal and amend their records with downloaded details including, "*come back to this*", "*fill this out later*", or random text e.g., "*asdfas*" or just a space or full stop used as a placeholder.
- Activities being counted outside the current term of registration (one teacher included a full year before the current term of registration) with significant learning activities (i.e., *TAFE Certificate program*) that could have put the teacher under the required hours for professional learning if not accepted.

5.2.8 Focus group insights

The focus group interviews conducted with teachers identified a high degree of uncertainty for teachers selected as part of the evaluation as the following excerpts demonstrate.

> *I was very apprehensive when notified that I was part of the evaluation … knowing exactly what the expectations were was a real concern.*

> *Being in this first group there was no one in my school who actually knew what exactly was required – what would be accepted as professional learning? What kinds of evidence should be used?*

> *I cried when I first received the email about being part of the evaluation because I had no idea that what I'd done was correct and felt really concerned!*

> *I attended the TRB information session held locally and found that really useful and provided lots of clear information. But when I was actually notified about the evaluation I did initially feel apprehension. However, I pulled out my notes from this session and checked out the website and felt calmer.*

As identified in these quotes, for many teachers there was a lack of understanding about exactly what might be included as part of professional learning, which drove their anxiety. When asked to elaborate on this further, teachers explained that it was confusing because of the conflicting information that was being shared with them. For example:

> *My Principal told us we could include all our staff meetings as professional learning but my friend in another school was told that it could not be included.*

> *One of my friends said that we could include the coaching that I was doing but then others said no, this is not right so I didn't include it in my summary.*

For another teacher there was confusion between the expectations of the employer system and the TRB requirement. For example:

> *Initially I thought that I had to do another so many hours on top of what I do as part of my 37.5 hours as I am in a DECD school and we are not allowed to include professional learning done during school hours as part of our professional learning.*

> *Examination marking is accepted as professional learning by some schools and my Principal supports us doing this but then a friend in another school was told that it didn't count as PL for registration.*

The last quote generated considerable discussion in the group with the teacher explaining that she could align this marking to the APST. So, there may be some confusion here with the assumption that just because an activity aligns to the standards it is professional learning. The problem is that professional practice also aligns to these standards with teachers who move from Provisional to Full registration expected to demonstrate how they have met these standards as part of their professional practice to their evaluator. What is critical here is that professional learning goes beyond the normal roles and responsibilities of a teacher, including marking for examinations.

These are some of the main areas of confusion shared by teachers during the interviews. However, an important point to make is that teachers who attended the TRB information sessions conducted in 2015 and those who spent time on the TRB website spoke highly about the lucidity these sources provided in helping them prepare their professional learning summaries. Further clarity about these expectations with examples of what constitutes professional learning will help to alleviate anxiety for subsequent groups of teachers facing renewal over the next two terms.

5.3 Nature of the Professional Learning Experiences

There are five broad areas of professional learning communicated by the TRB on the documentation provided to teachers in the form of overlapping circles that include: Face-to-face, Study, Research, Online learning, and Communities of practice. To explore the type of professional learning experiences accessed by teachers these modes were used as a reference point to explore the following research question and subsidiary questions. A summary of the findings in relation to these questions is provided *In a Nutshell.*

What was the nature of the professional learning activities undertaken by the teachers sampled?

- How did the PL provided by teachers align to the five areas of professional learning specified by TRB? How appropriate were these examples?
- How many hours were allocated to each of these five areas?
- What do these allocations of professional learning look like for different groups of teachers?
- What do the examples of professional learning look like across the different groups of teachers?

In a Nutshell

The professional learning identified by teachers in their summaries aligned to the five modes of learning currently used in the TRB in communications material, namely: Face-to-face, Study, Research, Online learning, and Communities of practice. The results presented here for modes of learning were based on a total of 38 479 activities representing 239 946 hours of work. Face-to-face activities accounted for the largest number of activities 31 539 equivalent to 174 146 hours; Study included 425 activities and 33 688 hours; Research 1 650 activities and 8 360 hours; Online learning 3 034 and 12 040 hours; and, Communities of practice 1 836 activities and 11 640 hours.

A statistical comparison of these data across employment status also found that Face-to-face was the highest mode of learning accessed by teachers regardless of their type of employment. Significant differences emerged for all modes of learning with the exception of Study. A higher median for Face-to-face activities for Permanent (FT>90%), FT contract and PT contract staff compared to the median for TRTs emerged. The results for Research identified a higher median for TRTs and teachers on Short-term contracts when compared to teachers employed full-time regardless of the work allocation. However, the median was also higher for TRTs compared to Permanent (PT 51-90%) staff. Similarly, TRTs emerged as being statistically different in relation to the median for activities indicative of Online learning but only compared to teachers employed as Permanent (FT>90%). Finally, a higher median for Communities of practice was evident for Permanent teachers when compared to TRTs. These results suggest that TRTs are limited to engage in particular types of professional learning likely because many have limited access to school-based professional learning (i.e., Face-to-face, Communities of practice). Evidence for this was provided by comments made by this group of teachers on the surveys and during focus groups interviews. However, it was also noticed during the interviews that TRTs in country locations were more likely to be incorporated into the Face-to-face workshops and other professional learning activities conducted in schools than their colleagues in Metropolitan locations.

A similar investigation of the modes of learning across employment setting found a high preference for Face-to-face for all groups with the exception of teachers in Long day care or Early childhood centres/ sites. As a group, a lower proportion of these teachers identified of Face-to-face learning activities (i.e., 71% compared to approximately 80% for other cohorts) while a higher proportion included Online learning (i.e., 25% compared to 7-9% for other cohorts). In terms of the median for each group, significant statistical differences were identified across all modes of learning. In general, the medians were higher or lower across the modes with no definite trends emerging with the exception of teachers Not currently teaching. The data indicate a shared experience between TRTs and those Not currently teaching. For example, the median number of Face-to-face activities for Not currently teaching was lower than all other groups with the exception of Long day care teachers. Alternatively, the median for Research activities for teachers Not currently teaching was higher than all other groups indicating a clear preference. In contrast to TRTs, the median activities for teachers Not currently teaching involving Online learning were not significantly different to other groups. This result is perhaps surprising as this mode offers a viable means for meeting professional learning requirements when away from teaching.

A comparison of the modes of learning on teacher summaries in relation to teacher employment location (i.e., Metropolitan, Country or Remote areas) identified that Face-to-face learning predominated regardless of the employment location of teachers. A Kruskal-Wallis (K-W) test followed by a Dunn's test found only two statistically significant differences: a higher median for Face-to-face activities for Metropolitan teachers; and (ii) a higher median for Online learning activities for Country teachers.

The data were also analysed statistically across years of teaching using the same tests as described above. However, only a minor marginal difference was identifiable indicating that the median for each mode of learning did not alter significantly ($p<0.05$) across the number of years teaching.

To explore consistency across the data teachers were asked a number of items of the online survey. Results from these items confirmed the strong place held by Face-to-face learning with teachers, which was ranked '1' by 69% of all the teachers completing the online survey. Communities of practice

was identified as the clear '2' preference with Study and Research ranked as '3'and '4' in fairly even distributions. The lowest ranking mode (i.e., 4 and 5) was Online learning with 55% of all the teachers selecting these rankings. This finding reinforces the lack of preference for Online learning evident on teachers' professional learning summaries generally. Subsequent statistical analyses verified the consistency of Face-to-face learning with no statistical differenced identified across all cohorts of teachers.

5.3.1 Overview of results

As outlined in Section 4.3.1, all the learning activities recorded in the professional learning summaries were coded using a shared understanding by coders. Once completed, the frequency of activities within each mode was tallied and calculated as a proportion of the total number of activities i.e., 38 479 representing 239 946 hours that were submitted in teachers' professional learning summaries. The percentage of learning activities aligned to each mode is presented in Figure 5.8.

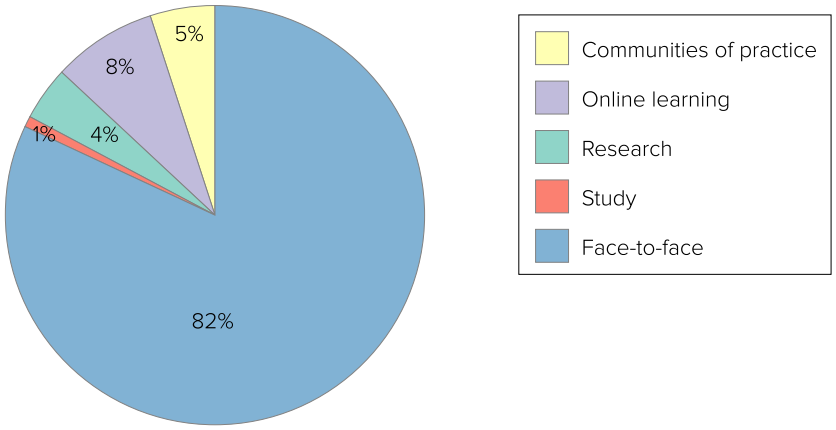


Figure 5.8 Modes of learning coded from teachers' professional learning summaries (n=2 092)

Clearly, Face-to-face activities were the most represented form of professional learning undertaken by teachers identified on the learning summaries. While the other modes of learning are evident, these were accessed at much lower levels. The number of activities in each mode and the hours represented included:

- Face-to-face - 31 539 activities equivalent of 174 146 hours;
- Study - 425 activities and 33 688 hours;
- Research - 1 650 activities and 8 360 hours,
- Online learning - 3 034 activities and 12 040 hours, and
- Communities of practice - 1 836 activities and 11 640 hours.

It must be reiterated that while acknowledging that individual teachers may have completed more than 60 hours of professional learning this may not have been documented on the summaries. As such, we recognise that the data presented in this report are based solely upon the summaries submitted as part of the evaluation process.

Unfortunately, it was not possible to differentiate between activities (e.g., especially Face-to-face) undertaken as part of school professional learning days and those where the teachers were required to

access the activity either outside of the school environment or in their own time. Given this was not a requirement there is not enough detail to comment of this aspect of the professional learning.

A comparison of the modes of learning coded from the summaries in relation to teacher employment location is provided in Figure 5.9. These data treat each group of teachers separately depending on their employment location by calculating the number of learning activities coded into the five modes as percentages of the total activities for each location. Looking across the locations it is clear that Face-to-face learning opportunities predominated regardless of the employment location of teachers. This is an interesting outcome as it might be expected that proportions vary given that access to Face-to-face workshops are difficult for teachers in Country and Remote locations and evidenced by the following quotes from teachers.

> *It is difficult to align family, travel and opportunities when you live in the country. There is limited training in the country. Training and professional learning can be expensive. Attending T&D often means missing out on family time and sporting commitments.*

> *Distance - living in rural area and needing to travel to Adelaide for face-to-face training, conferences*

> *Being in the country is always a challenge when many great opportunities are offered in Adelaide and not in country areas. You always need to factor in travel, accommodation and time away from work. If it's an after hour session, it is generally considered just too hard/not worth the effort.*

> *Accessing PD in country areas can be a challenge. There are few opportunities offered and they can be expensive. Travelling to Adelaide to access PD is expensive and impractical.*

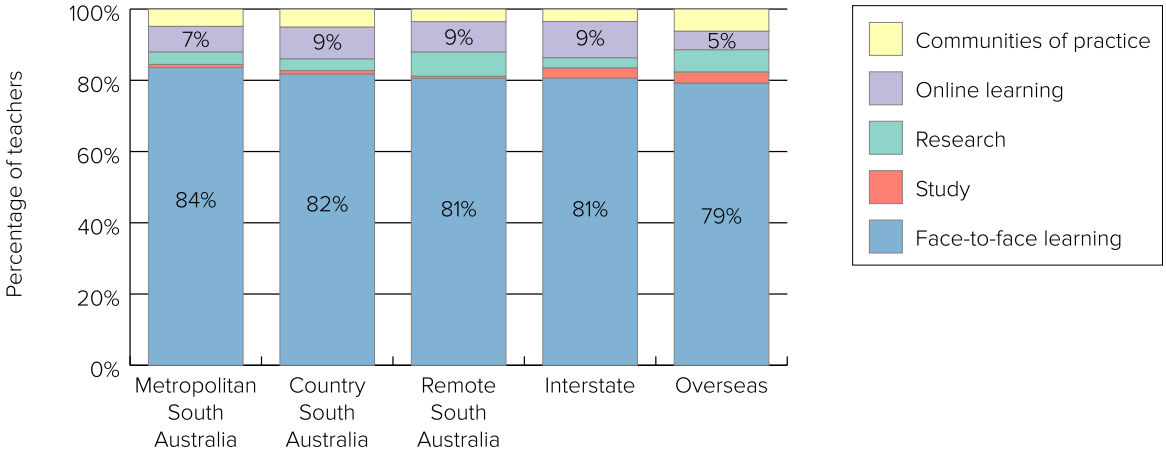


Figure 5.9 Modes of learning from professional learning summaries across employment locations (n=1 795, excludes Not currently teaching)

To test whether the median number of activities for each mode of learning varied across employment location, a Kruskal-Wallis (K-W) test was conducted followed by a Dunn's test where significance was detected at $p<0.05$. Due to the small sample sizes, the decision to focus on South Australian data was made thereby excluding Interstate and Overseas teachers. The results are summarised in Table 5.5. As these data are continuous, a Pearson's chi-square was not possible.

As demonstrated here, the only significant differences in Figure 5.9 are for Face-to-Face and Online learning. The higher median for numbers of activities that were Face-to-face in Metropolitan locations aligns to expectations given that this mode is more difficult for teachers in Country areas to access. Similarly, the higher median around numbers of activities for Online learning in Country areas is to be expected given the difficulties cited by teachers earlier in accessing Face-to-face. However, Country teachers often still prefer Face-to-face workshops as demonstrated below.

> *The other difficulty was location of Professional Learning in the city was difficult when attending from a country area. Therefore, I opted for online learning in some instances, however I felt the experience was not as rewarding as face to face and very lonely compared to being able to work with other teachers physically.*

Table 5.5 Summary of significant differences* in medians across employment location

Mode of Learning	Significance level	Interpretation of Dunn's test results
Face-to-Face	K-W=9.19, *p*=0.01, df=2*	Median for Face-to-Face learning opportunities was higher in Metropolitan areas than in Country locations.
Study	K-W=1.21, *p*=0.547, df=2	No significant differences.
Research	K-W=4.52, *p*=0.104, df=2	No significant differences.
Online learning	K-W=14.19, *p*=0.001, df=2*	Median for Online learning was lower in Metropolitan areas than in Country locations.
Communities of practice	K-W=0.24, *p*=0.891, df=2	No significant differences.

*Denotes statistically significant results

To compare across cohorts of teachers, the frequency data for the modes of learning were analysed in relation to employment status (Figure 5.10). Data presented in this figure were calculated by dividing the number of activities coded within each mode of learning by the total number of teachers in each of the cohorts of teachers. Use of proportional data allowed comparisons across the groupings of teachers.

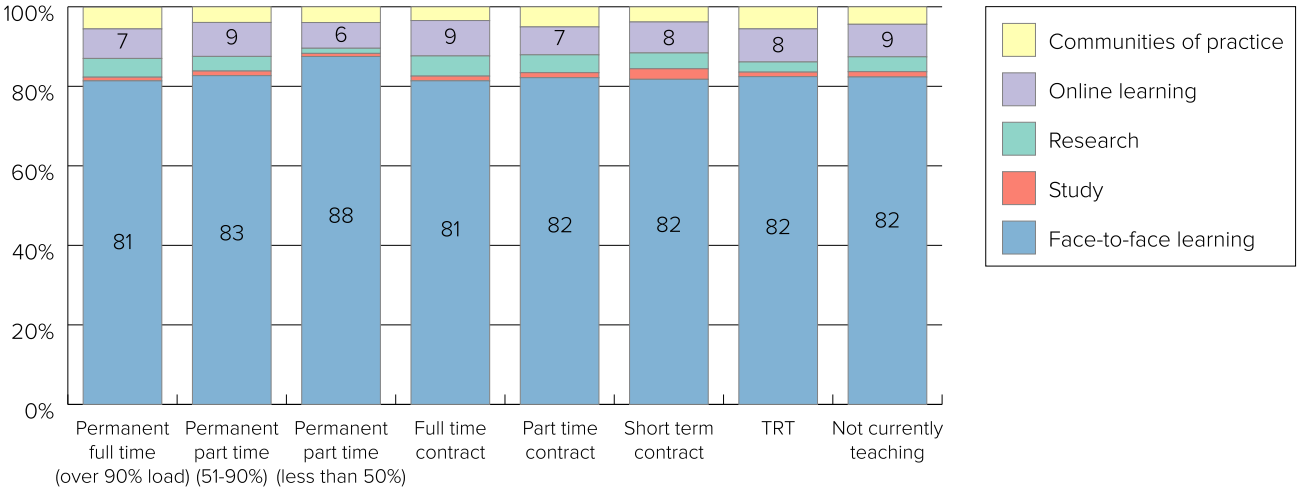


Figure 5.10 Modes of learning from professional learning summaries across employment status (*n*=1 980)

As demonstrated above, the pattern across the various groups of teachers appears similar with Face-to-face the highest mode accessed by all of these groupings of teachers. It is interesting to note the low incidence of Online learning for these groups of teachers regardless of their employment status. While

there are a variety of reasons to account for this, such as preference for teachers to engage with other teachers in a social setting, Online learning provides a viable alternative for TRTs and teachers Not currently teaching.

To test statistically whether the median for number of activities aligned to the modes of learning differed across employment status a Kruskal-Wallis test was conducted followed by a Dunn's test where significance ($p<0.05$) was detected. A summary of the results is provided in Table 5.6 (with details provided in Appendix 4). Note that Not currently teaching was excluded from this analysis but undertaken with employment setting.

Table 5.6 Summary of significant differences* in medians across employment status

Mode of Learning	Significance level	Interpretation of Dunn's test results
Face-to-Face	K-W=63.34, p=0.000, df=6*	Median for this mode of learning was significantly higher for Permanent (FT>90%), Permanent PT(51-90%), Full-time contract and Part-time contract than TRTs.
Study	K-W=31.61, p=0.177, df=6	No significant differences.
Research	K-W=194.62, p=0.000, df=6*	Median for this mode of learning was higher for TRTs and Short-term contract than Permanent (FT>90%) and Full-time contract; TRTs was higher than Permanent (PT 51-90%), Permanent PT (<50%) and Part-time contract.
Online learning	K-W=30.84, p=0.000, df=6*	Median for this mode was higher for Permanent (PT 51-90%) and TRTs than Permanent (FT>90%).
Communities of practice	K-W=30.75, p=0.002, df=6*	Median for this mode was higher for Permanent (FT>90%) and Permanent PT (<50%) than TRTs.

*Denotes statistically significant results

The findings identify clear significant differences for all modes of learning with the exception of Study. The higher median for Face-to-face activities for Permanent (FT>90%), FT contract and PT contract staff compared to the median for TRTs is not surprising given the challenges expressed by this group of teachers in accessing Face-to-face professional learning. For example:

> *I am not allowed to participate in my preferred professional learning which was organized by CESA, because I am not a employed teacher in the CESA system and only a TRT.*

> *As an Emergency Relief Teacher I have had limited opportunities to participate in professional learning with colleagues, as I am usually working for others whilst they attend training. I have always had to resource and fund my own training in my own time. As my employment is very irregular this has been an expensive exercise for me.*

> *Apart from a couple of short-term contracts the larger part of the last 3 years has been spent doing casual relieving teacher work. All the professional development I have undertaken has been fully self-funded, and self-initiated. Out of necessity it has been done 'out of hours' / weekends /school holiday periods.*

The results for Research as a mode of learning also aligned with expectations with the median number of activities higher for TRTs and teachers on Short-term contracts when compared to full time staff. However, the median was also higher for TRTs compared to Permanent (PT 51-90%) staff. Similarly, TRTs emerged as being statistically different in relation to the median for activities indicative of Online learning but only compared to teachers employed as Permanent (FT>90%). Finally, the higher median for Communities of

practice with Permanent teachers when compared to TRTs again fits in with what is more available for them to access given the difficulties faced in meeting the professional learning requirements. It is clear from these results that TRTs are being restricted to engage in particular types of professional learning usually because access to school-based professional learning (i.e., Face-to-face, Communities of practice) is not often readily available. However, when TRTs are invited into schools to participate in professional learning it makes a considerable difference as shared in the following quotes.

> *As a TRT it is hard to find free courses. I was reluctant to book PD days as not only could I miss out on work but they can be expensive. Into my second year of this term of registration I was invited to attend PD days at a school which made it manageable.*

> *I am a TRT in the country and have no problems accessing PD as the local school invites me to their days. This has really helped keep me remain connected to other teachers and what is happening in schools and education.*

During the focus group interviews it was noted that TRTs in country location were more likely to be incorporated into the Face-to-face workshops and other professional learning activities conducted in schools than their colleagues in Metropolitan locations. A further discussion around the challenges for TRTs and other teachers in addressing the professional learning requirements is provided in sub-section 5.7 of this report.

A similar investigation of the modes of learning across employment setting was also undertaken (Figure 5.11). The general pattern is similar to those above in response to employment status with the exception of teachers in Long day care or Early childhood centres/sites. This cohort of teachers appears quite different from all others with a lower proportion of Face-to-face learning activities identified (71% compared to approximately 80%) and a much higher proportion of online professional learning (i.e., 25% compared to 7-9%).

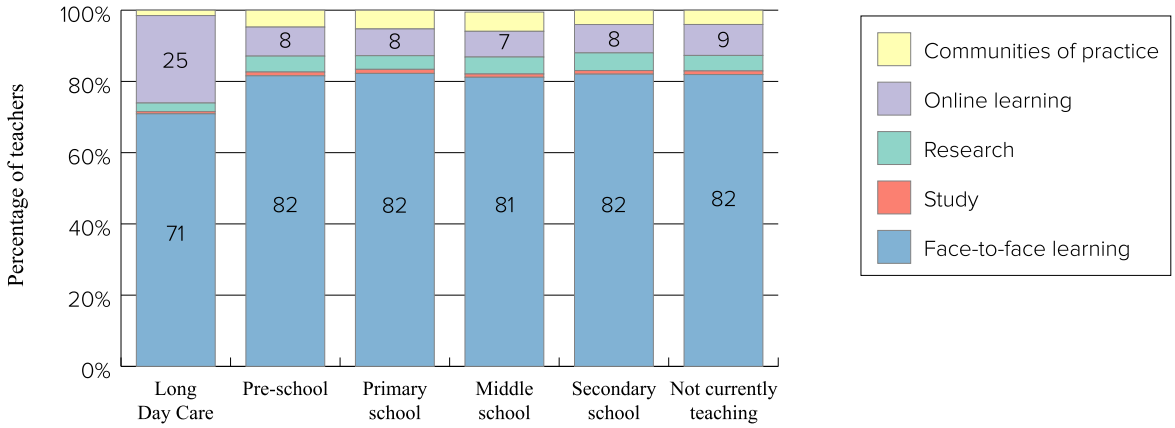


Figure 5.11 Modes of learning evident in professional learning summaries across employment setting (n=1 980)

Significant statistical differences across employment settings were identified across all modes of learning as presented in Table 5.7.

The findings highlight that there are differences between the cohorts of teachers and the modes of learning accessed. Generally, the medians are higher or lower across the modes with no definite trends emerging for a particular cohort with the exception of teachers Not currently teaching. The data indicate a shared

experience between TRTs and those Not currently teaching. For example, the median number of Face-to-face activities for Not currently teaching was lower than all other groups with the exception of Long day care teachers. Alternatively, the median for Research activities for teachers Not currently teaching was higher than all other groups indicating a clear preference. In contrast to TRTs, the median activities for teachers Not currently teaching involving Online learning were not significantly different to other groups. This result is perhaps surprising as this mode offers a viable means for meeting professional learning requirements when away from teaching.

Table 5.7 Summary of significant differences* in medians across employment setting

Mode of Learning	Significance level	Interpretation of Dunn's test results
Face-to-Face	K-W=92.59, p=0.000, df=5*	Median for this mode of learning was higher for Pre-school than for Not currently teaching; median was higher for Primary school than Middle and Secondary school and Not currently teaching; median for Middle and Secondary school was higher than Not currently teaching.
Study	K-W=97.31, p=0.000, df=5*	Median for this mode was higher for Long day care than for Pre-school and Primary school/centres; median was higher for Primary school than Middle and Secondary schools.
Research	K-W=95.27, p=0.000, df=5*	Median for this mode was higher for Not currently teaching than Pre-school, Primary, Middle and Secondary schools/centres.
Online learning	K-W=65.99, p=0.000, df=5*	Median for this mode was higher for Pre-school and Primary schools/centres than for Middle and Secondary schools.
Communities of practice	K-W=47.36, p=0.000, df=5*	Median for this mode was higher for Pre-school, Primary and Secondary schools/centres than for Not currently teaching; Primary school was higher than Secondary school.

*Denotes statistically significant results

The data were also analysed statistically across years of teaching using the same tests as described above. However, only a minor marginal difference was identifiable indicating that the median for each mode of learning did not alter significantly (p<0.05) across the number of years teaching.

In order to explore these modes further, teachers were asked on the online survey to rank their preferred modes of learning with '1' representing their first ranking and '5' their last ranking. Figure 5.12 summaries these findings calculated as the number of teachers ranking each mode as a proportion of the total number of teachers completing the item.

Figure 5.12 Rankings for preferred professional learning modes for all teachers as proportion of the total number of teachers (*n*=1 980)

These results confirm the strong place held by Face-to-face learning with teachers on the learning summaries, which is a clear favourite and ranked '1' by 69% of all the teachers completing the online survey. It is also noticeable that 32% of teachers identified Communities of practice as the clear '2' preference with Study and Research ranked as '3'and '4' in fairly even distributions. The lowest ranking mode (i.e., 4 and 5) was Online learning with 55% of all the teachers selecting these rankings. This finding reinforces the lack of preference for Online learning evident on teachers' professional learning summaries.

A Pearson's chi-square test was completed for each of the modes of learning and the teacher rankings (1-5) according to their employment status. Table 5.8 presents an overview of the findings with the full statistical details for those rankings where statistical differences were identified provided in Appendix 4. What is most obvious from this table is that the ranking of '1' for all of the modes of learning was consistent across each of the different groups of teachers represented. While statistical differences across the groups emerged, these were only for ranking '2', '3' and '5'.

Table 5.8 Summary of chi-square statistics for rankings across employment status

Rankings	Face-to-face Overall χ^2= 34.13 *p*=0.082, df=24	Study Overall χ^2= 45.00 *p*=0.0058, df=24*	Research Overall χ^2= 19.63 *p*=0.7175, df=24	Online learning Overall χ^2= 57.88 *p*=0.000, df=24*	Communities of practice Overall χ^2= 69.75 *p*=0.000, df=24*
1	No differences	No differences	No differences	No differences	No difference
2	No differences	• Fewer Perm (FT>90%) teachers ranked this 2 than expected • More PT contract teachers ranked this 2 than expected	No differences	• More TRTs ranked this 2 than expected	• More Perm (FT>90%) teachers ranked this 2 than expected • Fewer PT contract teachers ranked this 2 than expected • Fewer TRTs ranked this 2 than expected

Rankings	Face-to-face Overall χ^2= 34.13 p=0.082, df=24	Study Overall χ^2= 45.00 p=0.0058, df=24*	Research Overall χ^2= 19.63 p=0.7175, df=24	Online learning Overall χ^2= 57.88 p=0.000, df=24*	Communities of practice Overall χ^2= 69.75 p=0.000, df=24*
3	No differences	No differences	No differences	• Fewer TRTs ranked this 3 than expected	No differences
4	No differences	No differences	No differences	No differences	No differences
5	No differences	No differences	No differences	• More Perm (FT>90%) teachers ranked this 5 than expected • Fewer TRTs ranked this 5 than expected	• More PT contract teachers ranked this 5 than expected • More TRTs ranked this 5 than expected

*Denotes statistically significant results

A similar comparison across employment setting using Pearson chi-squares provided the following results (Table 5.9). As observed here there is clearly a high degree of consistency across the rankings of teachers representing the various employment settings in these results. Again, the ranking of Face-to-face learning by each of the cohorts indicates that this is valued highly by teachers who are currently teaching. As demonstrated here the only minor significant difference related to ranking '3' by those Not currently teaching. In terms of the other modes, slight differences emerged with only those teachers Not currently teaching appearing as consistently different to other cohorts.

Table 5.9 Summary of chi-square statistics for rankings across employment setting

Rankings	Face-to-face Overall χ^2= 34.21 p=0.025, df=20*	Study Overall χ^2= 30.95 p=0.0558, df=20	Research Overall χ^2= 37.95 p=0.009, df=20*	Online learning Overall χ^2= 15.86 p=0.7250, df=20	Communities of practice Overall χ^2= 39.50 p=0.006, df=20*
1	No differences	No differences	• Fewer Primary school teachers ranked this 1 than expected • More Not currently teaching ranked this 1 than expected	No differences	• Fewer Pre-school teachers ranked this 1 than expected • Fewer Not currently teaching ranked this 1 than expected
2	No differences	No differences	No differences	No differences	• Fewer Not currently teaching ranked this 2 than expected
3	• More teachers Not currently teaching ranked this 3 than expected	No differences	No differences	No differences	No differences

Rankings	Face-to-face Overall χ^2= 34.21 p=0.025, df=20*	Study Overall χ^2= 30.95 p=0.0558, df=20	Research Overall χ^2= 37.95 p=0.009, df=20*	Online learning Overall χ^2= 15.86 p=0.7250, df=20	Communities of practice Overall χ^2= 39.50 p=0.006, df=20*
4	No differences	No differences	No differences	No differences	No differences
5	No differences	No differences	No differences	No differences	• More Not currently teaching ranked this 5 than expected

*Denotes statistically significant results

A statistical analysis of the modes of learning rankings from the online survey item across years of teaching identified only a few rankings where there were statistically significant differences. However, these were only in relation to ranking '5' for Research and Online learning. Hence, they are not presented here.

Collectively, the statistical analyses of these rankings against modes of learning indicate a relatively high degree of consistency across cohorts of teachers. Importantly, the ranking of '1' for Face-to-face learning for this item supports the high level of activities provided on teachers' professional learning summaries that were indicative of this mode. When these insights were shared with teachers during the focus group interviews, individuals were quick to reply that Face-to-face workshops were enjoyed because of the opportunity to network with other teachers while engaging physically in the activity. However, teachers also explained that given their anxiety around the submission of professional learning summaries they deliberately targeted professional learning that was not questionable should they be audited by the TRB. For example:

> *I preferred face to face because I could identify the presenter and they gave certificates, which could be used as my evidence. Without this I was concerned about what to use and then thought if I was asked to produce the evidence – this was easy to do.*

Responses of this type were frequent indicating that this perception was common among the profession. Further discussion of this component is provided in sub-section 5.5.

To explore the nature of the activities in more detail, teachers completing the online survey were asked: "*Considering your professional learning over the last 3 years, to what extent did they include the following?*" Teachers were able to select between four options provided as a Likert scale: '*Yes, in all activities*', '*Yes in most activities*', '*Yes in some activities*', '*Not in any activities'*. Results are summarised in Figure 5.13.

The pattern here is self-explanatory with the high selection of '*Yes, in some activities*' and '*Yes, in most activities*' for the four constructs identified. It is worthwhile noting that 14% of teachers selected '*Not in any activities*' for '*An extended time-period with multiple sessions …*'. To explore variations across different cohorts of teachers, a Pearson's chi-square analysis was undertaken across employment status (excluding Not currently teaching). Results are as summarised in Table 5.10 (with full details in Appendix 4).

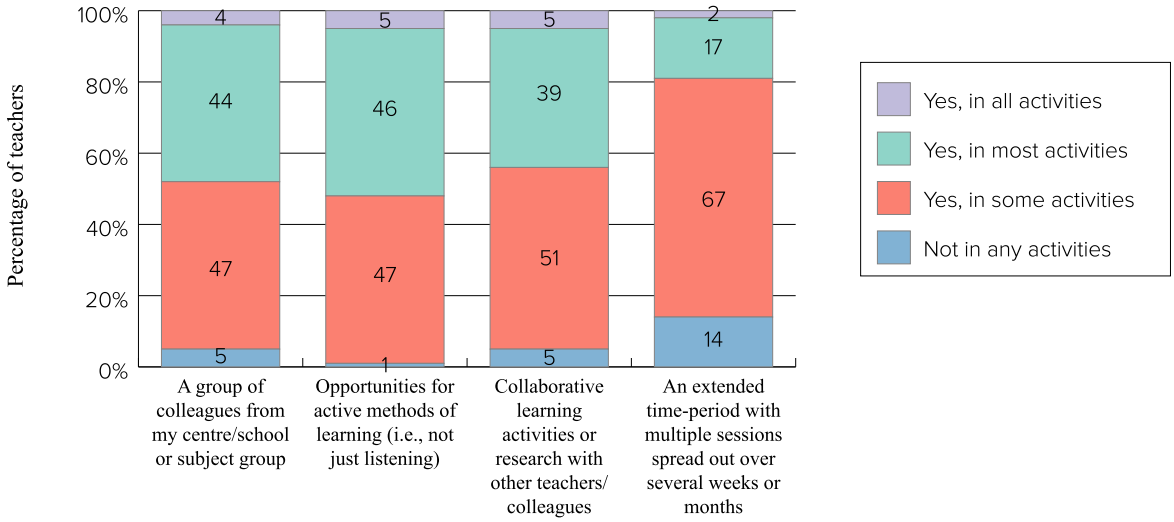


Figure 5.13 Professional learning beyond individual teacher (*n*=1 980)
(Source: TALIS, OECD, 2013)

Table 5.10 Professional learning beyond individual teacher across employment status

Preferences	A group of colleagues from my centre/school or subject group Overall $\chi 2$= 329.21 *p*=0.000, df=15*	Opportunities for active methods of learning Overall $\chi 2$= 23.19 *p*=0.184, df=15	Collaborative learning activities or research with others Overall $\chi 2$= 76.29 *p*=0.000, df=15*	An extended time period with multiple session over several weeks/months Overall $\chi 2$= 64.94 *p*=0.000, df=15*
Not in any activities	• Fewer Perm (FT>90%) and Perm (PT 51-90%) teachers selected this than expected • More Short-term contract teachers selected this than expected • More TRTs selected this than expected	No differences	No differences	• Fewer Perm (FT>90%) teachers selected this than expected • More Short-term contract teachers selected this than expected • More TRTs selected this than expected
Yes, in some activities	No differences	No differences	No differences	No differences
Yes, in most activities	• Fewer TRTs selected this than expected	No differences	• Fewer TRTs selected this than expected	No differences
Yes, in all activities	No differences	No differences	• Fewer TRTs selected this than expected	No differences

*Denotes statistically significant results

In viewing these results, the majority of differences relate to TRTs with fewer than expected opting for Yes in most or all activities and more than expected selecting Not in any activities. These are to be expected given the issues outlined earlier regarding TRTs and their difficulties in accessing professional learning in schools/centres. The only other group that appears somewhat impacted are teachers on Short-term contracts, with the reasons underpinning this likely to be the same as for TRTs.

The same analysis was undertaken across employment status with findings presented in Table 5.11.

Table 5. 11 Professional learning beyond individual teacher across employment setting

Preferences	A group of colleagues from my centre/school or subject group Overall χ^2= 189.48 p=0.000, df=15*	Opportunities for active methods of learning Overall χ^2= 30.10 p=0.012, df=15*	Collaborative learning activities or research with others Overall χ^2= 122.01 p=0.000, df=15*	An extended time period with multiple session over several weeks/months Overall χ^2= 43.50 p=0.000, df=15*
Not in any activities	• Fewer Primary school teachers selected this than expected • Fewer Secondary school teachers selected this than expected • More Not currently teaching selected this than expected	• More Not currently teaching selected this than expected	• Fewer Primary school teachers selected this than expected • More Not currently teaching selected this than expected	• Fewer Primary school teachers selected this than expected • More Not currently teaching selected this than expected
Yes, in some activities	• More Pre-school teachers selected this than expected • Fewer Primary school teachers selected this than expected	• More Secondary school teachers selected this than expected	No differences	No differences
Yes, in most activities	• More Primary school teachers selected this than expected • Fewer Not currently teaching selected this than expected	No differences	• Less Not currently teaching selected this than expected	No differences
Yes, in all activities	No differences	No differences	• Fewer 'Not currently teaching' selected this than expected	No differences

*Denotes statistically significant results

These results indicate a number of statistical differences with the majority emerging for the first construct, '*A group of colleagues from my centre/school…*'. What is interesting about these findings is that the cohort most identified are teachers Not currently teaching in ways similar to the findings for TRTs discussed above. Again, given that teachers who are not in school are not going to readily access any of the opportunities included in this item, these results are not surprising. There are other differences highlighted in the table but there is no general pattern that aligns to a particular cohort of teachers.

A statistical analysis of teacher selections to this item across years of teaching identified only a few very marginal differences that were significant only for the option '*Not in any activities*'. Subsequently, the results are not reported here. Similarly, no significant difference emerged across geographical location.

5.4 Impact of Professional Learning Experiences on Teacher Professional Growth

Enhancing individual teacher professional learning is pivotal for the teacher but collectively it helps to build the capacity within the school environment as colleagues learn from the experiences of others. In order to gain some sense about the impact of the learning experiences data collected in relation to the following research question and subsidiary questions are discussed. A summary of findings for each of these questions is provided *In a Nutshell.*

What impact did teachers perceive these learning experiences had on their professional growth?

- What were the major kinds of impact from professional learning evident from teachers?
- Could teachers provide examples of changes in their professional practice as a result of the PL undertaken?

In a Nutshell

The impact of professional learning on teachers proved to be a difficult construct to collect detailed data around, even with items provided on the online survey. In response to the online survey, teachers responded positively (i.e., High impact/moderate impact) regarding the various modes of learning. Statistical analyses of these data identified significant differences mainly for TRTs who selected High impact for Online learning more frequently than other cohorts of teachers while teachers Not currently teaching did the same for activities denoted as Research.

During the focus group interviews, teachers were asked to share some of the professional learning activities that had impacted them over the last year. The question generated a rich discussion around how impact is determined, given that it can vary over time. In general, teachers spoke about the immediate impact of vibrant presenters who captured the audience and were able to broaden one's thinking at the time. They explained further that their high interest in Face-to-face workshops was driven by these kinds of presentations along with the opportunity to engage with their colleagues. However, many teachers were cognisant that impact might not actually be realised until much further down the track, such as when confronted with a new teaching situation. At this stage, one might reflect back on a reading, discussion, or workshop that provides the necessary background to work the changed condition so that the impact is not immediate but much longer-term.

In the comments provided on the survey and conversations around impact, some teachers were sceptical about the emphasis on professional learning. The view shared was that although teachers might complete the 60-hour requirement, many had attended "*poor quality*" professional learning that had a negative, rather than positive impact on them as teachers.

Given the professional learning summaries did not address this aspect, teachers who completed the online survey were asked: "*Identify the mode(s) of learning undertaken over the last 3 years*". Results are summarised in Figure 5.14 demonstrating that teachers accessed all modes of professional learning with only a few teachers not completing at least one Face-to-face activity.

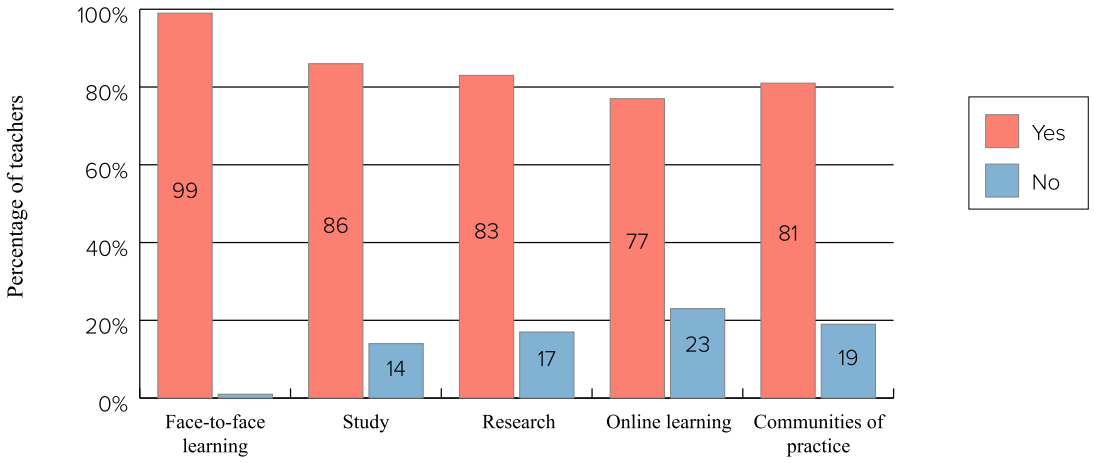


Figure 5.14 Modes of learning selected by all teachers as 'Yes' on survey (*n*=1 980)

To identify any statistical differences in relation to these data and the employment status of teachers, a Pearson's chi-square was undertaken. The results were not significant except for Communities of practice (overall chi-square=118.74, *p*=0.000, df=6; see Appendix 4 for details). Closer inspection of the data indicated that this difference was due to (i) fewer Permanent (FT>90%) teachers selecting 'No' for this mode than expected; and (ii) more Part-time contract teachers selecting 'No' for this mode than expected. Considered in the context of this item, neither of these results is surprising given that Full-time permanent teachers are likely to have greater access to other teachers in order to form Communities of practice while the opposite of this situation is likely to be the case for Part-time contractual staff.

The same analysis was completed for teachers by their employment setting. The Pearson's chi-square identified a number of significant differences for these data. The first was in relation to Face-to-face with more participants who are Not currently teaching selecting 'No' than expected (overall chi-square 75.33, *p*=0.000, df=5). The second difference was for Research with more Pre-school teachers selecting 'No' than expected (overall chi-square 14.33, *p*=0.01, df=5). The third difference around Communities of practice was evident with less Secondary teachers selecting 'No' than expected and more participants Not currently teaching selecting 'No' than expected (overall chi-square 68.45, *p*=0.000, df=5, see Appendix 4 for details).

For those modes identified, teachers were then asked: "*For each specified mode of professional learning activity, please estimate the impact of the activity*". The options provided on a Likert scale included '*High impact*', '*Moderate impact*', '*Some impact*', and '*Little impact*'. A summary of findings for all teachers completing the item is provided in Figure 5.15. These data represent the number of teachers selecting each of the Likert scale options for each of the modes of learning calculated as a percentage of the total number of teachers completing the survey.

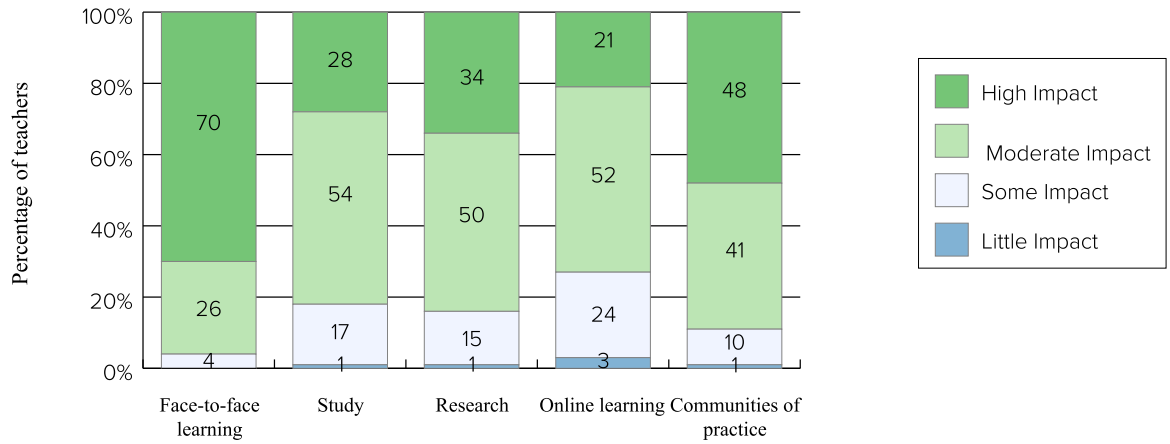


Figure 5.15 Impact on all teachers of the different modes of professional learning (n=1 980)

As can be observed in these findings, the impact of all the modes of learning were positive with high or moderate impact selected by teachers. Again, it was Face-to-face activities that received the most positive impact with 96% of all teachers opting for high (70%) or moderate (26%) impacts.

To explore these findings further, a chi-square analysis was completed across employment status. No significant differences emerged around impact for the different cohorts of teachers for Face-to-face, Study, or Communities of practice. In contrast, more Full-time contract teachers selected Some impact for Research than expected (overall chi-square=31.48, p=0.025, df=18). Interestingly, more TRTs selected High impact for Online learning than expected (overall chi-square=32.72, p=0.018, df=18), which aligns to their higher median for Online learning as a mode of study discussed in the previous sub-section of the report (see Appendix 4 for full details).

The same analysis was undertaken for employment setting. While no statistical differences across the groupings of teachers were evident for Face-to-face, Research, Online learning or Communities of practice, this was not the case for Study. Here, fewer teachers Not currently teaching selected Moderate impact than expected while more of the same group of teachers selected High impact than expected (overall chi-square=39.04, p=0.001, df=15).

These results regarding impact from the surveys identify no major differences in trends across the various cohorts of teachers in relation to the impact of professional learning. To explore this area further, the area of impact was discussed during the focus group interviews. In general, teachers spoke about the immediate impact of vibrant presenters who seemed to capture the audience and broaden one's thinking at the time. They explained that it was often these kinds of presentations and the opportunity to engage with other colleagues that drove their high interest in Face-to-face learning sessions/workshops.

> *Dynamic presenters really make a difference as they make you sit up and listen. You then get really fired up about something but often by the time you get back to school and other things can get in your way.*

> *Yes good presenters make a huge differences but sometimes it is difficult to judge about impact because what might not seem relevant at the time suddenly become relevant in a few months – so you then think back 'oh yeah I remember doing something on that!'.*

However, many teachers were cognisant that impact might not actually be realised until much further down the track, such as a new teaching situation or when confronted with a different context from the norm. It is only at this stage that one might reflect back on a reading, discussion, or workshop that provides the necessary background to work through the changed condition so that the impact is not immediate but much longer-term.

In the conversations around impact, some teachers were sceptical about the emphasis on professional learning. The view shared was that although teachers might complete the 60-hour requirement, many had attended "*poor quality*" professional learning that had a negative rather than positive impact on teachers. In explaining this further, some teachers explained that you do not always know prior to participating in professional learning what the quality and impact of it is likely to be. Critically, teachers did articulate that there will always be "*a small proportion of teachers completing professional learning merely to accrue the hours required*" without being overly discerning in their choices.

5.5 Professional Teaching Standards (APST) Alignment with Professional Learning Experiences

On the professional learning summaries, teachers were requested to align each of their activities to the APST. The discussion that follows uses collated data to address the following research question and subsidiary questions.

To what degree did the professional teaching standards align with the professional learning experiences reported?

- What standards are linked to the PL undertaken by teachers?
- Which are the most identified standards? Least identified?
- What is the average number of allocations per teacher?
- Appropriateness of these allocations by teachers?
- Do they really address the standards specified?

In a Nutshell

Teachers were able to align their professional learning activities to all of the APST with Standard 6 demonstrative of the highest proportion of activities. The least cited by teachers was Standard 5 regarding assessment of student learning. Statistical analyses across employment status, employment setting, and years of teaching identified numerous statistical differences across the various cohorts of teachers. In most instances, no trends were evident with the exception of TRTs and teachers Not currently teaching. The patterns that emerged for these two cohorts of teachers were similar with the median number of standards significantly less than other cohorts of teachers.

It was clear from the comments made by teachers during focus groups that they attempted to address as many standards as possible in their professional learning summaries. As a result, 1 726 teachers were able to align their activities to all seven standards; 248 teachers to six standards; 66 teachers to five standards; 29 teachers to four standards; 11 teachers to three standards; eight teachers to two standards; and four teachers one standard.

One component that was not included in the majority of professional learning summaries was an annotation in the teacher's own words explaining how the activity supported the teacher in addressing the standard specified. This became an issue in those instances where the activity submitted by a teacher bordered between professional learning and what might be construed as professional practice. The addition of an annotation, in most instances helped to clarify how the activity facilitated the individual teacher's learning in relation to the standards selected. Hence, this is an area requiring improvement in moving forward.

Overview of findings

In order to provide comparisons across the standards, the total number of learning activities aligned to each standard was calculated as a percentage of the total number of activities. As summarised in Figure 5.16, 40% of the total number of learning activities undertaken by teachers were aligned to Standard 1. Calculating in this manner provides the flexibility to either remove or ignore '*Engage in professional learning*' Standard 6 (which is not overly useful in this analysis) without affecting the other proportions.

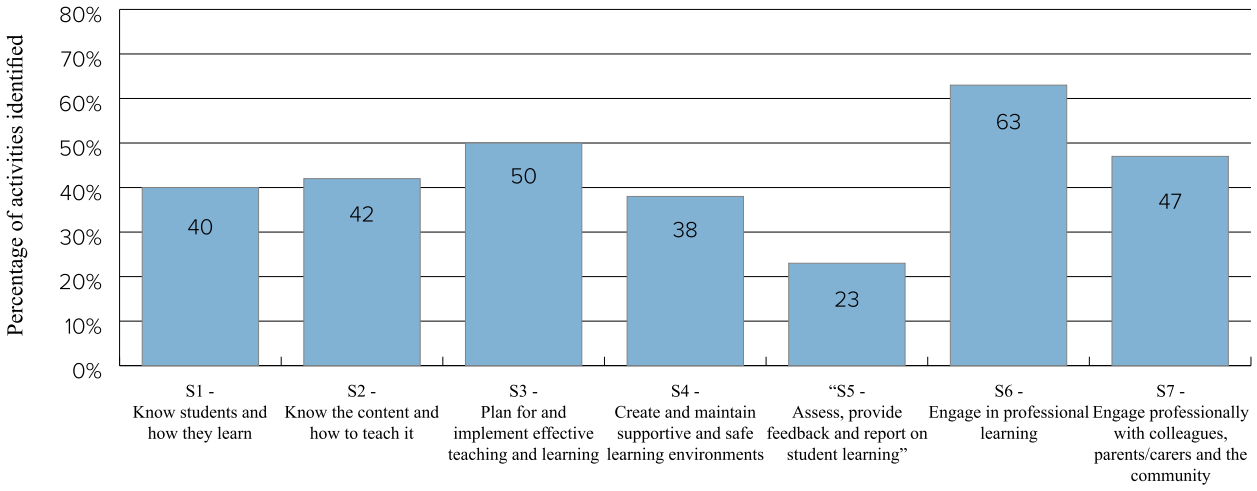


Figure 5.16 Standards identified by teachers for professional learning (*n*=2 092)

As demonstrated here teachers were able to align their learning experiences to all of the standards. While there is clearly variation across the standards, this is to be expected as teachers will have particular aspects in their teaching that they seek to focus on with their professional learning. During the focus group interviews it became apparent that many teachers had approached this component with the idea that they should be addressing all of the standards in their professional learning summaries. For example:

> *I did look at my PD activities and the standards and tried to make sure that I had focused on each one.*

However, there was no TRB requirement in assessing the summaries that this would be the case. To support this statement a collation of the number of standards addressed by teachers in their professional learning summaries is provided in Table 5.12. These data support the focus group interview findings with the majority of teachers (i.e., 1 726) actually referring to all the standards across the activities comprising their 60 hours of professional learning in their summaries.

Table 5.12 Number of standards targeted by teachers in all activities submitted in learning summaries

No. Standards	No. teachers
1	4
2	8
3	11
4	29
5	66
6	248
7	1 726

So entrenched was this notion of feeling obliged to align to all standards that 2 098 of the individual learning activities submitted by teachers actually identified *all seven standards*. However, there are few activities, unless occurring over an extended period of time that would likely address all of the APST.

One of the major issues identified by teachers during focus group interviews and in their comments on the survey was in meeting specific foci (e.g., 1.4 Strategies for teaching Aboriginal and Torres Strait Islander students) if not in a school/centre where professional learning in this area might be a priority over other areas.

> *I had no trouble aligning to the standards but the sub-standards were tricky for me – I found it hard to align to these and some are not really relevant to where I am teaching.*

> *Selection of the standards was not hard and I really liked the points underneath each one [of the standards] because these really made me think carefully about the learning I had experienced.*

Inclusion of the focus areas on the professional learning summaries was not actually a TRB requirement. The information shared with teachers who rang the TRB for support in aligning their work to the standards was to use the foci only to help them align their learning activities to the standards.

A comparison of the median for each of the standards in relation to employment status identified a number of significant differences (Table 5.13, n=1 830, excludes teachers not completing the online survey). Note that teachers Not currently teaching were excluded from this analysis but undertaken within employment setting. A Kruskal-Wallis one-way analysis of variance was undertaken initially to test that the median for all employment settings were equal. A significant result (p<0.05) indicates that they are not equal with a Dunn's test identifying specifically where the differences were located. The results from the K-W test for the standards are provided separately along with an interpretation of what these mean in relation to the data. Full details of these analyses are provided in Appendix 4.

The findings highlight clear significant differences for all standards across the various cohorts of teachers. However, while these differences are only occasional for some cohorts (e.g., Full-time contract), there is a consistent trend for TRTs. In most instances the median for each standard for other cohorts of teachers, with the exclusion of Part-time and Short-term contracts, are higher than for TRTs.

Table 5.13 Summary of significant differences* in medians across employment status

Standard	Significance level	Interpretation of Dunn's test results
1	K-W=20.10, *p*=0.003, df=6*	Median for the standard for Permanent (FT), Permanent (PT 51-90%), and Full-time contract teachers is greater than for TRTs.
2	K-W=20.18, *p*=0.003, df=6*	Median for Permanent (FT), Permanent (PT 51-90%), and Full-time contract teachers is greater than TRTs
3	K-W=20.62, *p*=0.002, df=6*	Median for Permanent (FT), Permanent (PT 51-90%), and Full-time contract teachers is greater than TRTs.
4	K-W=10.87, *p*=0.092, df=6	No significant differences.
5	K-W=53.11, *p*=0.000,df=6*	Median for Permanent (FT), Permanent (PT 51-90%) is greater than Permanent (PT<50%) and TRTs; median for Permanent (PT 51-90%) is greater than Short-term contract; median for Full-time contract is greater than TRTs.
6	K-W=35.87, *p*=0.000, df=6*	Median for Permanent (FT), Permanent (PT 51-90%) and Full-time contract is greater than TRTs.
7	K-W=40.29, *p*=0.000, df=6*	Median for Permanent (FT), Permanent (PT 51-90%) and Full-time contract and Part-time contract is greater than TRTs.

*Denotes statistically significant results

A similar analysis was undertaken for employment setting (Table 5.14, *n*=1 980). These results demonstrate significant differences across the cohorts of teachers and the APST. In general, the medians are higher or lower for each of the standards with no definite trends emerging for a particular cohort except for teachers Not currently teaching. Full statistical details where significant differences emerged are available in Appendix 4.

Table 5.14 Summary of significant differences* in medians across employment setting

Standard	Significance level	Interpretation of Dunn's test results
1	K-W=112.12, *p*=0.000, df=5*	Median for the standard in Pre-school and Primary school is higher than in Middle school and Secondary school settings and for Not currently teaching.
2	K-W=100.04, *p*=0.000, df=5*	Median for Long day care is less than Primary school; median for Pre-school is greater than Not currently teaching; median for Primary school is greater than Middle school and Secondary school and Not currently teaching; median for Middle school is greater than Not currently teaching; median for Secondary school is greater than Not currently teaching.
3	K-W=80.46, *p*=0.000, df=5*	Median for Pre-school school is greater than Secondary school and Not currently teaching; median for Primary school is greater than Middle school and Secondary school and Not currently teaching; median for Middle school is greater than Not currently teaching; median for Secondary school is greater than Not currently teaching.
4	K-W=72.92, *p*=0.000, df=5*	Median for Pre-school school is greater than Primary school, Middle school, Secondary school and Not currently teaching; median for Primary school is greater than Secondary school and Not currently teaching.
5	K-W=52.92, *p*=0.000, df=5*	Median for Pre-school, Primary school, Middle school and Secondary school is greater than Not currently teaching.

Standard	Significance level	Interpretation of Dunn's test results
6	K-W=62.34, *p*=0.000, df=5*	Median for Pre-school, Primary school, Middle school and Secondary school is greater than Not currently teaching.
7	K-W=45.32, *p*=0.000, df=5*	Median for Pre-school, Primary school, Middle school and Secondary school is greater than Not currently teaching.

*Denotes statistically significant results

Overall, these results indicate that the medians for TRTs and teachers Not currently teaching regarding the individual standards demonstrate similar patterns or trends. This is not a surprising outcome given that these two cohorts of teachers are not attached in a permanent capacity to schools/centres so are likely to share similar difficulties in meeting their professional learning requirements.

In addition, the standards were explored in relation to years of teaching using similar statistical tests as outlined above (Table 5.15). Looking at these results the median for Over 15 years of teaching is often higher than for other years of lesser teaching, particularly for standards 2, 3, 6 and 7. While there are slight statistical differences between other years of teaching these are not definite trends in the data. Of interest is the lack of statistical differences with the medians for years of teaching for standards 1, 4 and 5.

Table 5.15 Summary of significant differences* in medians across years of teaching

Standard	Significance level	Interpretation of Dunn's test results
1	K-W=3.12, *p*=0.539, df=4	No significant differences.
2	K-W=15.42, *p*=0.004, df=4*	Median for Over 15 years is greater than 6-9 years; 0-3 years is greater than 6-9 years;
3	K-W=14.50, *p*=0.006, df=4*	Median for Over 15 years of teaching is greater than 6-9 years of teaching.
4	K-W=8.84, *p*=0.065, df=4	No significant differences.
5	K-W=11.61, *p*=0.03, df=4	No significant differences.
6	K-W=35.06, *p*=0.000, df=4*	Median for Over 15 years of teaching is greater than 3-6 years of teaching; Over 15 years of teaching and 9-15 years is greater than 6-9 years of teaching.
7	K-W=41.05, *p*=0.000, df=4*	Median for Over 15 years of teaching is greater than 6-9 and 3-6 years of teaching; 0-3 years of teaching is greater than 6-9 years of teaching.

*Denotes statistically significant results

It is clear from the results presented so far that teachers did not appear to struggle in aligning their professional learning to all of the standards. However, the quality of this alignment was not clear in a large number of cases according to the TRB staff auditing the learning summaries. For example, one teacher completed all professional learning around content in relation to the health curriculum, which is highly appropriate. Yet, not one of the activities was actually referenced to APST 2 '*Know the content and how to teach it*', which was the more relevant of all the standards. Some of the key issues identified by the TRB staff included:

- Lack of identification of standards at all in the summaries;
- Referencing against the three domains of the APST and not the actual standards;

- Lack of annotation or a link between learning activities and the APST;
- Referencing to the AITSL standards for Principals rather than APST;
- Referencing to curriculum (e.g., Early Years Framework) rather than APST;
- Provision of just the focus areas (e.g. 1.2, 1.3) considered relevant with no other links;
- Submission of a copy-pasted version of the standards;
- Provision of additional information, such as a general description of a course or the provider without annotating how this supported meeting a specific standard;
- Inclusion of brief annotations (e.g., "leadership") in reference to the standards for a Master's degree even though this encompassed all 60 hours of professional learning; and
- Referencing a single activity to all seven APST (even items like first aid training).

The annotation is actually a critical component of this process because it demonstrates how the activity undertaken by an individual teacher has helped in meeting a specific standard. While this is sometimes clear from the nature of the activity specified, in other circumstances it is difficult to understand why one standard is more relevant over another. This is especially important with activities that might border the professional learning/professional practice divide.

During interviews a few teachers shared examples of activities that had been submitted as part of the professional learning summaries that were not accepted as part of the audit. Once the teachers explained in their response to the TRB how the activity was professional learning, it seemed that the missing link was a clear annotation.

The discussion around the standards generated considerable engagement of teachers during the focus group interviews. A clear preference from teachers was being able to complete professional learning where the provider distributed a certificate of participation with the standards met by the activity identified. Teachers communicated how easy this was for them to make sure that they were accurately aligning their professional learning to the standards. However, this practice removed the opportunity for teachers to reflect on how the learning helped them to meet a particular standard. This latter view was shared by a number of teachers who spoke negatively about the practice of having standards merely supplied for teachers. In their view, sitting and reflecting on the Face-to-face workshop undertaken and the way it supported their learning in relation to the standards was crucial for the teacher to complete.

> *Actually, I can comment on this from both sides because in my previous job I did exactly what teachers are wanting for my staff. I would summarise the professional learning we had undertaken at the school and aligned each to the teacher standards. But now in my new job I do not do this anymore. I am happy to summarise the PL but do not identify the standards because I think part of the PL for teachers is to reflect on the activity and how it addresses a particular standard. There is no one right or wrong answer but it is a personal view that teachers need to make.*

Other teachers, usually in leadership roles, shared similar comments to the quote above in a number of the focus groups. In their view, it was only when teachers had to align their learning to the standards that

the real ownership of the process emerged. Otherwise in the case of school/centre-based professional learning, the teacher has very little to do apart from attending each activity. The importance of individual teacher involvement in this process is articulated in the following quote:

> *I found the process of documenting my professional learning incredibly valuable. It made me sit back and think about what I had undertaken, what I had learnt and where the gaps in my learning might be. So, it has been one of the most useful things I have actually done having gone through it now. But it really depends on how the teacher perceives it and works through it! You can do it for the sake of doing it, or you can ensure it is deeper than that!*

Comments of this type indicate a high degree of reflective thought in relation to where the responsibility of professional learning resides.

5.6 Nature of Evidence of Professional Learning Summary

The final data source collected from teacher professional learning summaries was the evidence of professional learning retained in their records. The following research question and subsidiary questions were used to provide some insights around this aspect of the evaluation.

How did teachers record and provide evidence of their professional learning? What was the nature of this evidence?

- What evidence was most often provided/cited? How clear was this evidence?
- Was the evidence appropriate for the professional learning experienced?
- Is it possible to identify the most useful ways for teachers to document evidence in the future?

In a Nutshell

The evidence provided for the majority of learning activities was either Certificates or Notes with Resources and Attendance records being used less often. Some teachers did provide alternative sources of evidence, such as "*minutes from meetings*", "*email communication trails*", "*personal blog/tweet*" after the activity. As part of the auditing process, TRB staff identified two major issues: (i) 12% of learning activities submitted by teachers did not include a source of evidence; and (ii) evidence provided was not appropriate for the activity. Focus group interviews with teachers highlighted that what constituted evidence was a key area of confusion in completing their professional learning summaries. In fact, the area was so confusing for some teachers that they deliberately sought Face-to-face professional learning to obtain a certificate of attendance because they knew this would be an acceptable source of evidence. These findings indicate an important area of follow up for the TRB in helping teachers understand the nature of evidence that is acceptable for particular types of professional learning.

To extricate the data presented here, the evidence provided by teachers was coded for collation purposes into five categories: Notes, Certificates, Resources, Attendance record, and Other for evidence falling outside of these categories. Examples of evidence representative of each category as provided by teachers in the evaluation and considered appropriate are provided in Table 5.16.

Once coded each category was tallied and divided by the total number of learning activities. As teachers were able to identify more than one piece of evidence for a learning activity, the total can be greater

than 100% (see Figure 5.17). As demonstrated, the most frequently cited evidence was Certificates as distributed either by the professional learning providers or in some instances the schools/centres employing the teachers. These accounted for 53% of the learning activities. Notes were the next most identified in 33% of activities with the other categories substantially lower in proportion. Given the simplicity of the data with only two major sources evidenced, no statistical tests were undertaken.

An important category was '*Other*' in that it collected the more unusual forms of evidence from teachers. One creative example was the identification of a URL for a personal blog that summarised the learning undertaken over the three-year period along with hours, alignment to the standards as required by the TRB.

Table 5.16 Evidence of teacher professional learning (*n*=2 092)

Category	Teacher examples from summaries
Notes	• Handwritten notes • Summaries • Dot points • Reflections • Reports • Annotated or highlighted articles • Journal/diary entries
Certificates	• Certificate • Qualification transcript/parchment
Resources (given to teachers when they access professional learning)	• Handouts, booklets, brochures • Information packs, goodie bags • USB drive resources • Copies of powerpoints or presentation slides • Event programs/agendas, proformas • Classroom resources
Attendance Record	• Sign-in sheet • Leadership verification • Record on database • Letter of thanks
Other	• Meeting minutes • Photographs or video/audio recording • Personal blog or moodle, social media posts e.g. tweets during the activity • Tasks, worksheets or assignments completed during the PL activity • Registration confirmation, receipt of payment, ticket • Email/communication trails

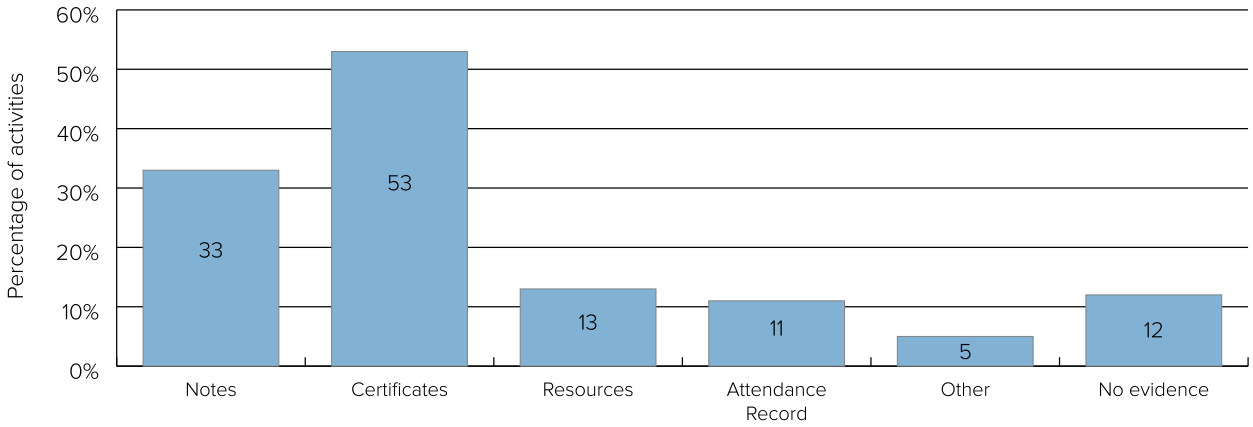


Figure 5.17 Categories of evidence identified on teachers' professional learning summaries (*n*=2 092)

The auditing process of the learning summaries by TRB staff identified two main issues in relation to evidence.

1. As observed in Figure 5.17, 12% of learning activities did not have a source of evidence attached. In some instances, teachers cited that evidence was available "*on an old ipad I no longer have*". While some of these professional learning summaries were accepted this year, this may not be the case in subsequent audits by the TRB.

2. In some instances, the evidence provided did not appear to be the most appropriate for the activity. For example, one teacher cited a flyer advertising the workshop as evidence. However, this is not useful because it does not provide evidence that the teacher actually attended the event (e.g., such as an attendance record).

During the focus group interviews, teachers were asked to identify the sources of evidence used in their professional learning summaries. Discussion focused around those provided here with a number of teachers identifying confusion about what constituted evidence in the summaries. As part of this discussion, many of the teachers stated that apart from the networking and preference for Face-to-face sessions, an additional advantage was the provision of certificates. In fact, a number of teachers deliberately sought out providers that distributed certificates that aligned the activity to the standards. Teachers mentioned that they did not include activities that they did not feel would successfully be accepted as part of the TRB auditing process. Even TRTs and teachers Not currently teaching explained that they tried to find Face-to-face professional learning because they did not know what to collect and identify as evidence for learning denoted as Research, Online learning or Communities of practice. These insights are important because they highlight another factor that explains the high proportion of Face-to-face activities that emerged across the board for all cohorts of teachers, even TRTs.

5.7 Challenges Experienced in Meeting Professional Learning Requirements

Within this section, the discussion focuses on the following research question and subsidiary questions.

What were the key challenges experienced in meeting professional learning requirements?

- What were the major challenges identified?
- Which groups of teachers experienced the most difficulty? What were their major issues?

In a Nutshell

The results presented in relation to challenges indicate that there are cohorts of teachers who are more likely to experience difficulties in being able to access a range of professional learning in order to meet the 60 hours requirement. In particular, TRTs emerge as being the most impacted, with teachers Not currently teaching or on Short-term contract also affected although to a lesser extent. Statistical analyses consistently identified TRTs and teachers Not currently teaching as being significantly different to the other cohorts of teachers in relation to access to school support for professional learning, having to pay for all of their professional learning, and a greater need for juggling family and work responsibilities. Similar analyses across school location found significant differences for Country teachers in relation to: (i) ability to access relevant professional learning; (ii) time; and, (iii) juggling family and work responsibilities. Years of teaching was also statistically analysed with differences emerging mainly in

relation to teachers with 0-3 years representing early career teachers.

Supporting these analyses were the open responses provided by teachers on the online surveys. TRTs and teachers Not currently teaching provided 132 responses about their concerns in accessing professional learning, which in the majority of cases was because they were not included in school-based activities. Location and the issues around the internet were raised by Country and Remote teachers (110 responses) with the cost of professional learning identified in 69 responses that were representative of all teachers. Follow up comments provided by teachers during the focus groups supported these statements indicating that they are difficulties that these cohorts of teachers are juggling evidenced in much of the data presented in this report.

Another group of challenges appeared school-based including leadership and management being unsupportive (23 responses); balancing full-time teaching with professional learning and being out of school (18 responses); wanting to share professional learning with other like-minded people (9 responses); school processes (i.e., signing off to attend) impeding professional learning (8 responses); and, limited money for schools (7 responses). These issues were corroborated by comments made by teachers during focus group interviews. For example, a number of teachers explained that while they easily attained their 60 hours of professional learning by undertaking the allocated days of in-service provided by the school, they had not been supported in undertaking activities outside of the school unless it specifically aligned to the school strategic plan. While they understood the leadership imperative about this, teachers still had specific areas of subject interest or other specialisations that they wanted to pursue.

The last group of challenges focused around the process of tracking professional learning (62 responses); finding suitable/quality professional learning (51 responses); and, awareness of the requirements (45 responses). Again, the focus group interviews allowed teachers to explain some of these challenges in greater detail. For example, some teachers spoke about the anxiety in not being aware of what the requirements were in documenting their professional learning. The focus groups highlighted that even though the TRB had been very active in its communication strategy with teachers around the professional learning requirements, there were still teachers who had not heard about the online portal for teachers. Hence, there is still ongoing work for the TRB to do in this space.

In considering the findings presented around challenges, it is interesting that much of the reference to professional learning refers specifically to Face-to-face opportunities as teachers explain cost, their inability to leave classes, the lack of availability of these sessions in their local area, or having to juggle family commitments to attain the 60 hours of professional learning. Yet, it is possible for teachers to participate in Research, Study, Online learning and Communities of practice in their own schools to meet this requirement. Why is Face-to-face such a focus when it is very challenging for particular cohorts of teachers? As mentioned elsewhere in the report, it goes without saying that teachers traditionally prefer Face-to-face for the intellectual, professional, and social opportunities. However, for some teachers demonstrated by the results shared here, accessing it becomes especially difficult. While the TRB has provided the flexibility for teachers to take up any mode of learning that is relevant and of value to their own professional learning, the findings presented indicate that teachers in general have focused on Face-to-face sessions even if it created challenges in their day-to-day lives. Critically, input from teachers in the focus group interviews, suggests another major factor compounding to this outcome was the teachers' apprehension around producing summaries of professional learning linked to evidence that would pass the benchmark for the audit by the TRB.

5.7.1 General findings

In preparation for the evaluation, data already collected from the TRB during the teacher conference in June 2015 identified financial cost as an issue for some groups of teachers in accessing professional learning. To explore this issue along with other challenges experienced by teachers in meeting and documenting their 60 hours of professional learning, a number of items were included on the online survey.

In the following Likert scale item, teachers were asked: "*How strongly do you agree or disagree that the following were challenges to your participation in professional learning?*" Teachers were able to select one option from "*Strongly agree*", "*Agree*", "*Disagree*", and "*Strongly disagree*". Results for this item are provided in Figure 5.18.

As observed here from the general pattern of responses, most teachers selected the Strongly disagree and Disagree options indicating that these were not major challenges for the teacher sample as a collective. However, *Professional learning is too expensive/unaffordable* and *Professional learning conflicts with my work schedule* obtained the higher proportion of 'Strongly agree' and 'Agree' responses (i.e., 40% and 43%) when compared to the others identified.

To explore statistical variations of these challenges across employment status, a Pearson chi-square was completed for each of the seven constructs (i.e., items from the online survey comprising the horizontal axis in Figure 5.18). Statistically significant differences were identified for three of the constructs as identified in Table 5.17 along with an interpretation of these results. Full details of this analysis are provided in Appendix 4.

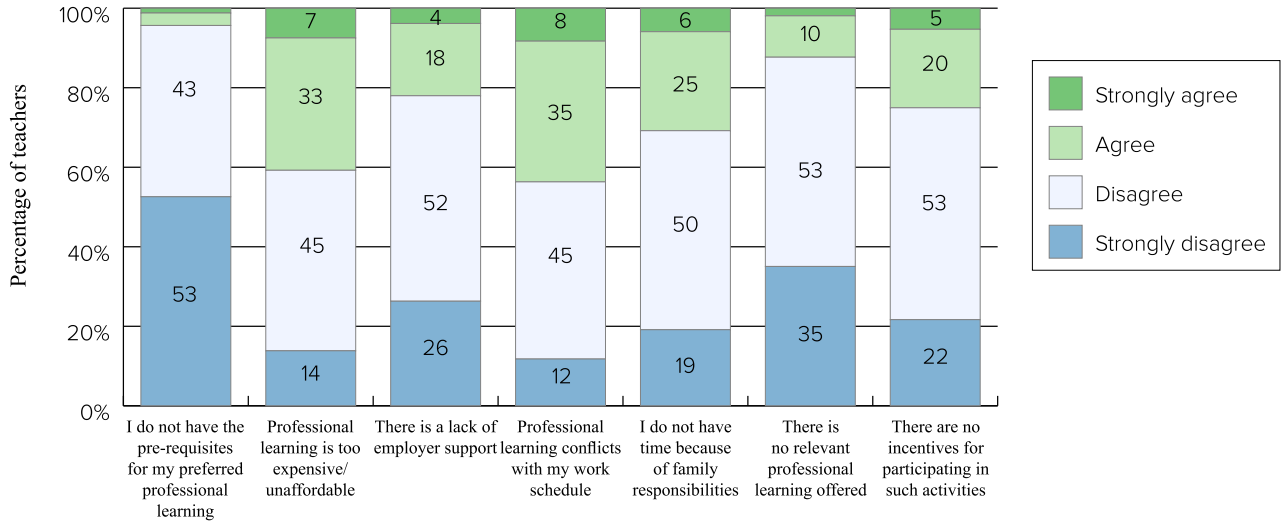


Figure 5.18 Challenges for all teachers in completing professional learning requirement (*n*=1 980)
(Source: TALIS, OECD, 2013)

Table 5.17 Challenges across employment status

Teacher Selection	I do not have the necessary pre-requisites (e.g., qualifications) Overall χ^2= 77.00 p=0.000, df=18	Professional learning is too expensive Overall χ^2= 49.76 p=0.000, df=18	There is a lack of employer support Overall χ^2= 50.63 p=0.000, df=18
Strongly disagree	• More Permanent (FT>90%) teachers selected this than expected • Fewer Full-time contract teachers selected this than expected • Fewer Part-time contract teachers selected this than expected	• More Permanent (FT>90%) teachers selected this than expected	• Fewer TRTs teachers selected this than expected
Disagree	• Fewer Permanent (FT>90%) teachers selected this than expected • More Full-time contract teachers selected this than expected • More Part-time contract teachers selected this than expected	No differences	No differences
Agree	• More Short-term teachers selected this than expected	No differences	• More TRTs selected this than expected
Strongly agree	No differences	• More Short-term contract teachers selected this than expected • More TRTs selected this than expected	• More TRTs selected this than expected • Less Perm (PT 51-90%) teachers selected this than expected

Looking at these data, a higher number of Permanent (FT>90%) selected the disagree options for the first two constructs. While TRTs do not emerge as being statistically different from the other cohorts of teachers for these constructs, this is not the case for construct three regarding *There is a lack of employer support*. The responses from the survey identify that this is clearly an issue for TRTs with significantly more Strongly agree/agree responses for this construct that other cohorts of teachers. These results were supported by information shared by these teachers in comments on the survey and during the focus groups interviews. Examples included:

> *Because I am contract and TRT teacher I have had to mostly seek out my own Professional development opportunities. It is a challenge not being permanently linked with a work site.*

> *I elected to do TRT for a year. This meant that I needed to be very proactive in seeking out professional learning opportunities as I did not have any particular school to provide me with information about available opportunities happening within their school.*

However, on occasion a TRT appeared to have access to school-based professional times they did most of their casual teaching.

> *I am lucky to do the majority of my teaching at one particular school so they include me in some of their professional development. Some things I have paid for but I would appreciate more free workshops from educational bodies for TRTs.*

However, these instances were rare rather than the norm for the majority of TRTs included in the evaluation sample. The only difference identified was that TRTs in Country schools appeared to have greater access to school professional learning than their colleagues in Metropolitan schools. This aspect is clearly a major issue for TRTs because linked to it is a degree of isolation they experience in trying to keep 'up-to-speed' with changes occurring in relation to education. The following excerpt provided by a teacher on the survey really captures the challenges articulated by TRTs.

> *I worked part-time and TRT during past 3 years. As a TRT you were not included into schools professional development or it meant saying no to a school and paying for a Professional development day yourself, meaning losing a days relief teaching pay - which was a big struggle compared to being permanently employed at a school previously and getting paid to attend a learning day and also have the course paid. Very difficult as a Relief teacher. Heard a lot of teachers had same difficulty making it hard to get hours up from Registration or having to lose registration with some giving it up as it was so costly to maintain professional development.*

A similar analysis was conducted in relation to employment setting with statistically significant results evident for three constructs as presented in Table 5.18. Note that the first two of these constructs emerged also for employment status as described above.

Table 5.18 Challenges across employment setting

Teacher Selection	I do not have the necessary pre-requisites (e.g., qualifications) Overall χ^2= 32.07 p=0.006, df=15	Professional learning is too expensive Overall χ^2= 26.53 p=0.033, df=15	There is a lack of employer support Overall χ^2= 39.77 p=0.001, df=15
Strongly disagree	• Fewer Primary school teachers selected this than expected • More Secondary school teachers selected this than expected	No differences	No differences
Disagree	• More Primary teachers selected this than expected • Fewer Secondary school teachers selected this than expected teachers selected this than expected	No differences	• Fewer Secondary school teachers selected this than expected
Agree	No differences	No differences	• More Secondary school teachers selected this than expected
Strongly agree	No differences	• Fewer Secondary school teachers selected this than expected	No differences

These results show significant differences between the proportions for agree and non-agree options across mainly Primary and Secondary teachers. However, there is no overall trend or pattern evident here. What is different though in this item compared to other analyses across employment setting is that teachers Not currently teaching usually appear as a significantly different cohort. But this was not the case even though there were numerous comments made by these teachers in the online surveys and during the focus group interviews. For example:

> *I recently had 18 months maternity leave and was not contacted by my school to attend any of the PD that was offered to staff. I also didn't know at the time that I was entitled to access PD whilst on leave.*

> *When I was based in a school my professional learning was really well catered for. I was able to have a direct impact on my learning in a collegiate environment. When I retired and wanted to keep up my own professional learning this was more difficult. I found I needed to attach myself to a school and tap into their T & D programs and know when they would be running a particular professional session I thought would be good for me. This is the approach I'll continue into the future.*

A Pearson chi-square analysis of challenges in relation to employment location identified statistically significant differences for five of the constructs (see Table 5. 19). Within this analysis, note that Interstate and Overseas teachers were removed so that the data here represents teachers of South Australia only (n=1 795).

Table 5. 19 Challenges across employment location

Teacher Selection	I do not have the necessary pre-requisites (e.g., qualifications) Overall χ^2= 17.46 p=0.008, df=6	Professional learning is too expensive Overall χ^2= 13.23 p=0.04, df=6	Professional learning conflicts with my work schedule Overall χ^2= 31.37 p=0.000, df=6	I do not have time because of family responsibilities Overall χ^2= 17.16 p=0.009, df=6	There is no relevant professional learning offered Overall χ^2= 39.83 p=0.000, df=6
Strongly disagree	No differences	• Fewer Country teachers selected this than expected	No differences	• More Remote teachers selected this than expected	• Fewer Country teachers selected this than expected
Disagree	No differences	No differences	• Fewer Remote teachers selected this than expected	No differences	No differences
Agree	• More Country teachers selected this than expected	No differences	No differences	No differences	• Fewer Metropolitan teachers selected this than expected • More Country teachers selected this than expected

Teacher Selection	I do not have the necessary pre-requisites (e.g., qualifications) Overall χ^2= 17.46 p=0.008, df=6	Professional learning is too expensive Overall χ^2= 13.23 p=0.04, df=6	Professional learning conflicts with my work schedule Overall χ^2= 31.37 p=0.000, df=6	I do not have time because of family responsibilities Overall χ^2= 17.16 p=0.009, df=6	There is no relevant professional learning offered Overall χ^2= 39.83 p=0.000, df=6
Strongly agree	No differences	No differences	• More Country teachers selected this than expected • More Remote teachers selected this than expected	No differences	• More Country teachers selected this than expected

These results require closer consideration. Note here that different constructs generate statistically significant differences compared to those for employment status and employment setting. New for this analysis are: "*I do not have time because of family responsibilities*" and "*There is no relevant professional learning*". The first of these is likely to relate to issues for Country and Remote teachers in having to travel for professional learning to Adelaide so that time becomes a critical factor. Comments similar to those provided here proliferated the online surveys provided by teachers from Country and Remote locations.

> *Most training is offered in the city and not in the country areas. A day doing training and development is a night away or 8 hours travel on top of the training. Other training is between 4pm to 6pm which means country teachers can't access it. Cost is another issue – food, accommodation, petrol, and the cost of training.*

> *Distance - living in rural area and needing to travel to Adelaide for face-to-face training, and conferences. Teaching a range of subjects part-time - hard to justify paid PL sessions when only a small fraction of my time may be using that.*

> *Travel expenses, as most good training opportunities are in Adelaide …[removed to protect identity of teacher]…Flights are far too expensive, around $300 return. There are no incentives and we are severely disadvantaged over teachers in the metropolitan area and nearer country in accessing quality training opportunities. Also, nearly all training opportunities are on weekdays or after school on week days, which is fine for metropolitan teachers but not for country teachers. Online trainings are sometimes available but they are hard to get real support with and often your questions don't get answered promptly (if they get answered at all).*

The latter comment picks up a number of the factors that were shared by teachers from Country and Remote locations during the focus interviews.

A Pearson chi-square analysis of challenges in relation to years of teaching identified statistically significant differences for four of the constructs (see Table 5. 20). Looking at these results, it is the first construct "*I do not have the necessary pre-requisite (e.g., qualifications)*" that produces the major differences. The main pattern evident here is that teachers with fewer years of teaching (i.e., 0-3) experience selected the Strongly disagree/disagree options than expected along with more of the Strongly

agree/agree options thereby recognising the need for other pre-requisites in order to access professional learning interests. In reviewing some of the comments for these teachers it might be that they are looking for professional learning, such as special education, recognising that they do not have perhaps the background knowledge that would allow them to readily make a case for attending the professional learning workshop.

Table 5. 20 Challenges across years of teaching

Teacher Selection	I do not have the necessary pre-requisites (e.g., qualifications) Overall χ^2= 96.42 p=0.000, df=12	Professional learning conflicts with my work schedule Overall χ^2= 34.87 p=0.001, df=12	I do not have time because of family responsibilities Overall χ^2= 57.46 p=0.000, df=12	There is no relevant professional learning offered Overall χ^2= 27.87 p=0.006, df=12
Strongly disagree	• Fewer 0-3 years teachers selected this than expected • Fewer 3-6 years teachers selected this than expected • Fewer 6-9 years teachers selected this than expected • More over 9 years teachers selected this than expected	• Fewer 3-6 years teachers selected this than expected • More over 9 years teachers selected this than expected	• More 0-3 years teachers selected this than expected • Fewer 9-15 years teachers selected this than expected	• Fewer 9-15 years teachers selected this than expected • More over 15 years teachers selected this than expected
Disagree	• More 0-3 years teachers selected this than expected • More 3-6 years teachers selected this than expected • More 6-9 years teachers selected this than expected • Fewer over 9 years teachers selected this than expected	No differences	• Fewer 9-15 years teachers selected this than expected	No differences
Agree	• More 0-3 years teachers selected this than expected • Fewer over 9 years teachers selected this than expected	No differences	• Fewer 0-3 years teachers selected this than expected	No differences
Strongly agree	• More 0-3 years teachers selected this than expected	• More 0-3 years teachers selected this than expected • Fewer over 9 years teachers selected this than expected	• More 6-9 years teachers selected this than expected • More 9-15 years teachers selected this than expected	No differences

To explore this area further, teachers were asked: "*What other specific challenges did you face in meeting the 60 hours of professional learning requirements for registration?*" The open responses provided to this question were coded into general themes with the frequency of responses used to produce Figure 5.19. A total of 726 teachers provided comments, which were coded as appropriately to create 909 pieces of data given that some comments identified two or more challenges.

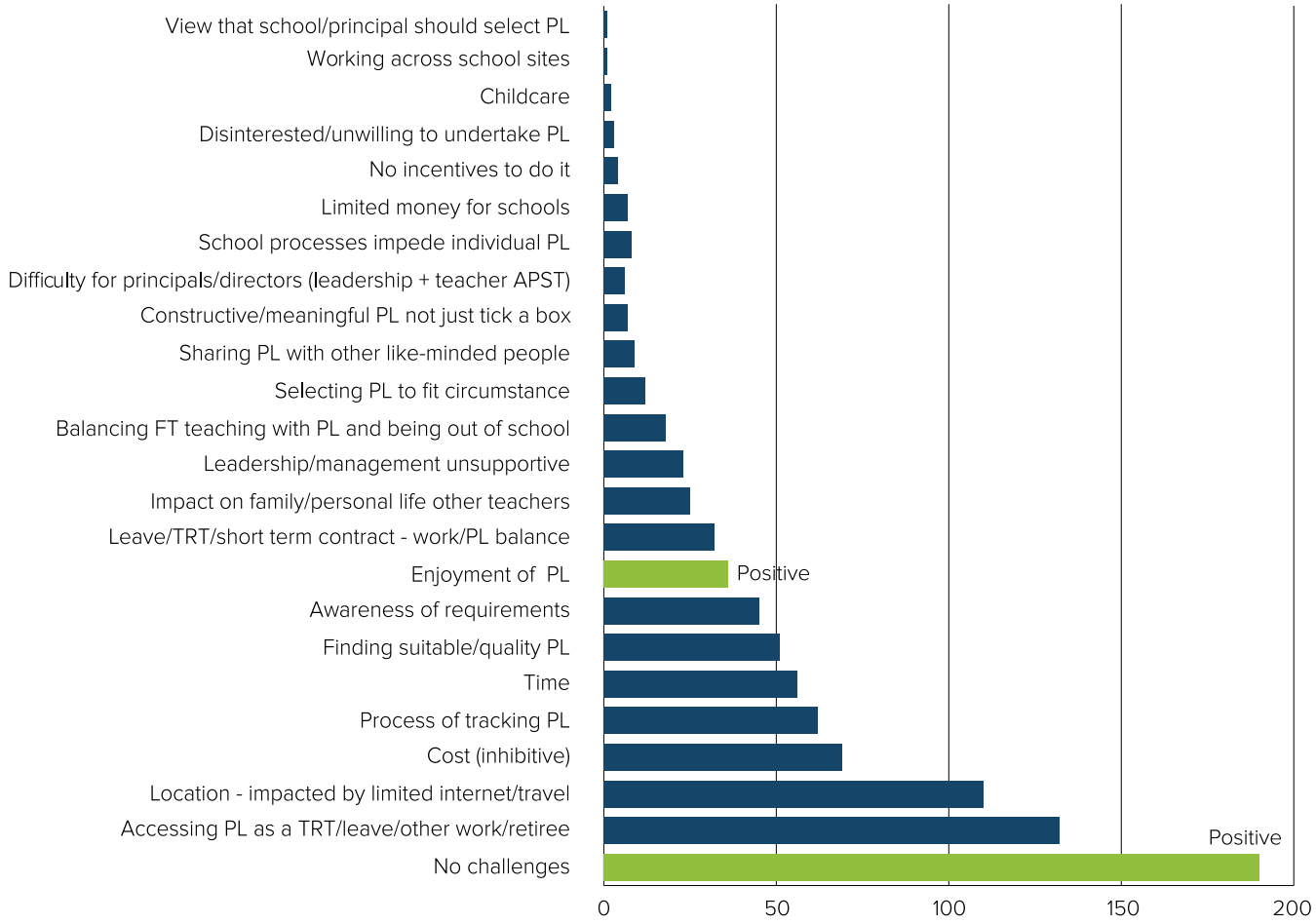


Figure 5.19 Summary of challenges as frequencies emerging from teacher responses (*n*=726)

Included in these results are two positive themes (shaded in green) prevalent in the data. In these comments teachers either specifically outlined that they did not encounter any challenges in meeting the professional learning requirements (i.e., 190 comments), or expressed how valuable professional learning is for them as teachers (i.e., 36 comments). With these exceptions, the other comments explained the difficulties faced by teachers in attaining the 60 hours of professional learning over three years.

As demonstrated in Figure 5.19, TRTs and teachers Not currently teaching provided 132 responses about their concerns in accessing professional learning, which in the majority of cases was because they were not included in school-based activities. Location and the issues around the internet were raised by Country and Remote teachers (110 responses) with the cost of professional learning identified in 69 responses that were representative of all teachers. Follow up comments provided by teachers during the focus groups supported these kinds of statements indicating that they are real issues that these cohorts of teachers are juggling evidenced in much of the data in this report. The following comment from a Country teacher encapsulates the complexity involved for these cohorts of teachers.

> *Geographical distance from a lot of professional learning conferences/workshops in Adelaide. Lack of babysitting support where I live to look after my child, to free me up to attend conferences/workshops in Adelaide (elderly grandparents, close friends, other family members live geographical distance away compounds the problem). Over most of the last 3-years my husband worked 5 days Mon-Fri and 1/2 day on Saturday which didn't help to free me up as*

well. Being a full-time mum for most of the last 3 years made it difficult to access professional learning in schools/knowing what was available -not knowing if my professional learning was suitable or my recording of it being appropriate. - having to do the best I could with regards to what I saw as a restricted range of professional learning opportunities due to circumstances as above and not knowing the broad range of professional learning opportunities available.

In addition to these challenges, there were other difficulties that were school-based including leadership and management being unsupportive (23 responses); balancing full-time teaching with professional learning and being out of school (18 responses); wanting to share professional learning with other like-minded people (9 responses); school processes (i.e., signing off to attend) impeding professional learning (8 responses); and, limited money for schools (7 responses). These issues were also discussed by teachers during focus group interviews. For example, a number of teachers explained that while they easily attained their 60 hours of professional learning by undertaking the allocated days of in-service provided by the school, they had not been supported in undertaking activities outside of the school unless it specifically aligned to the school strategic plan or goals. While they understood the leadership imperative about this, teachers still had specific areas of subject interest or other specialisations that they wanted to pursue.

The last group of challenges focused around the process of tracking professional learning (62 responses); finding suitable/quality professional learning (51 responses); and, awareness of the requirements (45 responses). Again, the focus group interviews allowed teachers to explain some of these challenges in greater detail, such as the anxiety experienced in not being aware of the expectations in documenting their professional learning. Furthermore, even though the TRB had been very active in its communication strategy with teachers regarding the professional learning requirements, there were still teachers who had not heard about the online portal. However, these teachers were the exception rather than the norm as discussed later in section 5.9 that reports on the TRB and its communication strategy.

5.7.2 Cost and support challenges

In order to explore the cost and support aspects associated with professional learning, teachers were asked to respond to one of three options to the following: "*For the professional learning activities undertaken, I personally paid for ..*" with the options being "*None*", "*Some*" or "*All*". A summary of these data for all teachers completing the online survey is provided in Figure 5.20.

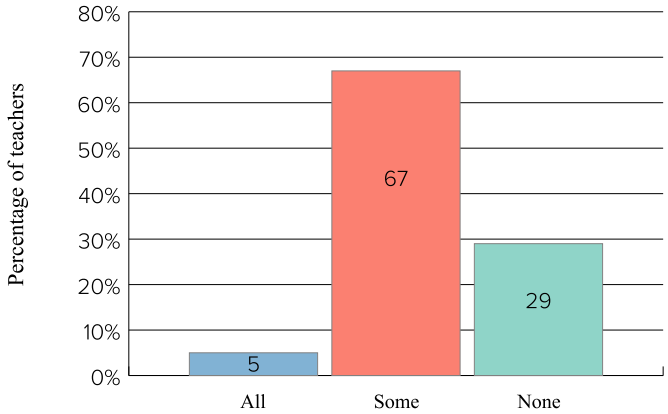


Figure 5.20 Financial cost for teachers for professional learning (*n*=1980)
(Source: TALIS OECD, 2013)

A comparison of these results in relation to employment status is provided in Figure 5.21. From these results, it is clear that a higher proportion of TRTs, those Not currently teaching, and teachers on Short-term contracts have paid for All of their professional learning. In contrast, Permanent teachers regardless of the amount of time worked are more likely to receive all of their professional learning cost-free.

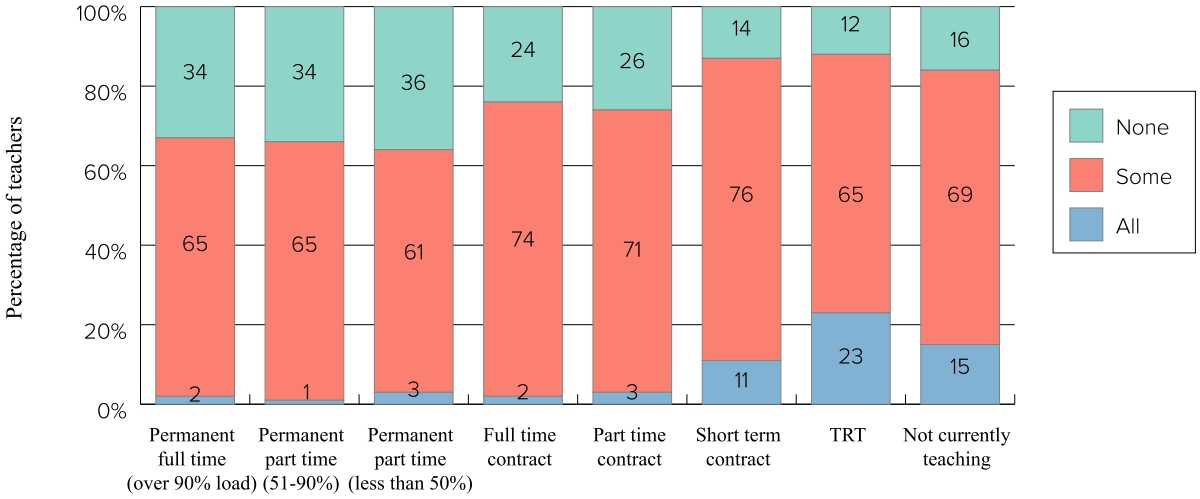


Figure 5.21 Employment status versus financial cost of professional learning (n=1 980)
(Source: TALIS, OECD , 2013)

To explore these findings further, a chi-square analysis was completed across employment status (excluding Not currently teaching) with significant differences identified (overall chi-square 206.24, p=0.000, df=12). In relation to None for payment, more Permanent (FT>90%) teachers selected this option than expected while fewer Short-term contract and TRTs selected this option. No statistical differences were detected across the cohorts of teachers for Some payment. Highly significant differences were evident for All payments with fewer Permanent (FT>90%; PT 51-90%) teachers selecting this option and more Short-term contract and TRTs selecting this option (see Appendix 4 for statistical details). These findings support the other data already discussed about the difficulties of cost associated with specific cohorts of teachers in accessing a range of professional learning.

Viewing the same data in relation to employment setting (Figure 5. 22) highlights that a similar pattern emerges for teachers Not currently teaching as that demonstrated above for TRTs.

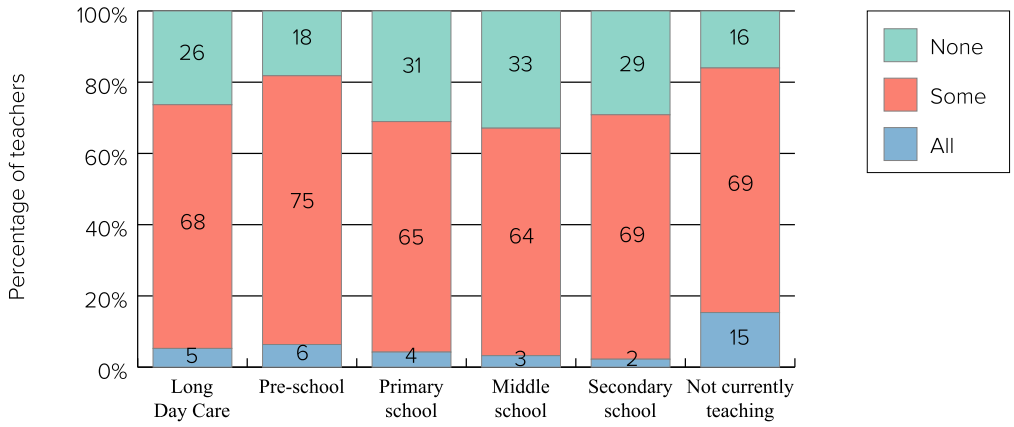


Figure 5.22 Employment setting versus financial cost of professional learning (n=1 980)
(Source: TALIS, OECD, 2013)

A Pearson's chi-square analysis for these data with the inclusion of Not currently teaching identified significant differences (overall chi-square 64.78, p=0.000, df=10). In particular, fewer Pre-school teachers and participants Not currently teaching selected None in relation to payment. No statistical differences were evident for Some payment. However highly significant differences emerged for All, with fewer Secondary teachers and participants Not currently teaching selecting this option. This is an interesting finding in that it indicates that more Secondary teachers are paying for their professional learning than their colleagues in other employment settings.

An analysis between payment for professional learning and years of teaching identified no significant differences (overall chi-square 3.42, p=0.906, df=8) as did a comparison across employment location (overall chi-square 8.9, p=0.35, df=8).

The issue of cost for professional learning was very contentious in some focus groups with TRTs feeling particularly disadvantaged in having to either find workshops and activities that were free or at a low cost given they were usually excluded from schools and/or site-based professional learning. However, Permanent (FT) teachers across all three employment sectors spoke about the fact that they too were having to pay for professional learning that was of particular interest.

> *I had no problems in getting the 60 hours but all of this was PL provided by the school – it was the direction of the leadership team in the school. But when I wanted to go to a conference in my subject area, I was not able to go. Part of this is that money is not as accessible as it was and if the school allocates money to PL for staff to do as a whole, it reduces what we can then access for other activities.*

> *As a full-time teacher in a school I got way more than 60 hours. Most of this was just from what I did in school but I have had to pay for PL that I really wanted to do as I was not able to get it covered by the school.*

Hence, accessing appropriate and relevant professional learning is not as straight-forward as it might first appear with lots of complexity evident from the data gathered as part of the evaluation. The issue raised here around school/site-directed professional learning, which is totally understandable as leadership teams build towards the future, seemingly taking precedent over individual-based professional learning, undermines the ownership of professional learning for teachers. Unfortunately, it is not only the cost that becomes problematic as teachers are prepared to attend a specialist music conference (e.g., music education) but may not be given the authority to attend by their leadership (e.g. Principal, Director) because ultimately the school or site might need to cover the cost of a TRT to replace the teacher. Examples of comments from the surveys included:

> *Difficulty accessing some of the online training. Would like to have more choice and say in what professional learning I undertake to ensure relevancy.*

> *For 2014 & 2015 I was not supported by Leadership to attend or be given opportunities to access appropriate T&D during school hours. All my T&D/professional learning had to occur in my own time at my own cost. As a result of being a 'minority' at school - teaching the Special Class, the Leadership were unsupportive, uninformed of ways to support myself & my class & were extremely difficult when it came to encouraging, fostering, scaffolding & understanding the T&D that was valuable to myself & my SSO (& other staff). Fortunately,*

our Leadership has changed for 2016 & there has been a drastic change in attitude from those currently in Leadership at our school. I have been reassured that there is an interest in my Special Class & the students I teach which is an extremely welcomed & appreciated attitude & I am looking forward to the learning opportunities I am able to embrace in not just my time but during school hours also.

> *I was keen to attend a music conference but had to go in my own time and pay for it myself as funding was not available through the school as the PD money had been allocated to school-based PD for all staff.*

> *Each school easily provided 60 hours onsite learning with professional learning teams, compulsory T&D. The issue is accessing high quality and targeted T&D such as the annual science teachers' conference or STEM workshops, which are expensive and usually done in my own time, without compensation. The incentives for participating are intrinsic professional well-being and satisfaction and have nothing to do with promotion, money or qualifications.*

To follow up on this item, teachers were asked to select "Yes" or "No" to the following question: "*For the professional learning activities completed, I received – (i) Scheduled time for activities that took place during regular working hours at this centre/school; (ii) A salary supplement for activities outside working hours; and, (iii) Non-monetary support for activities outside working hours (reduced teaching)*". Results are provided in Figure 5.23).

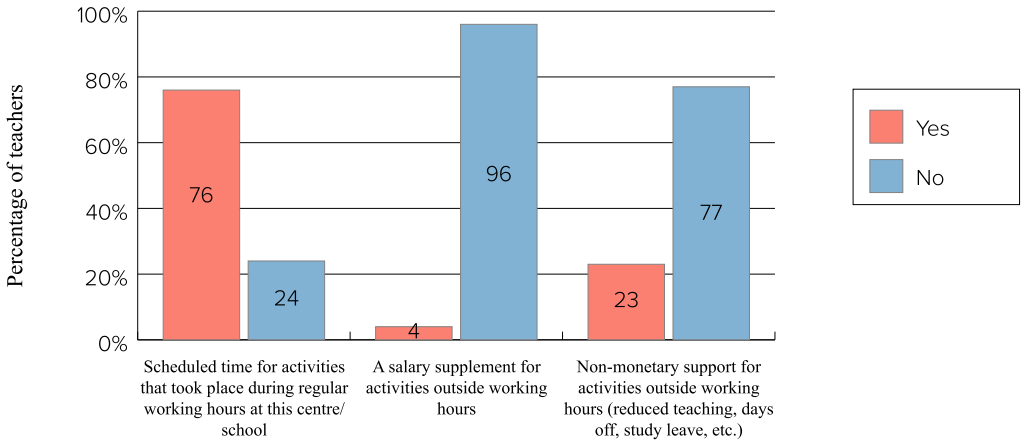


Figure 5.23 Support for professional learning (n=1 980) (Source: TALIS, OECD, 2013)

When these results were considered for "*Scheduled time for activities that took place during regular working hours*" in relation to employment status and employment settings, variations emerged (Figures 5.24 and 5.25). The data in these figures were produced by calculating the numbers of teachers opting for each of the options as a percentage of the total number of teachers within each sub-grouping to facilitate comparisons.

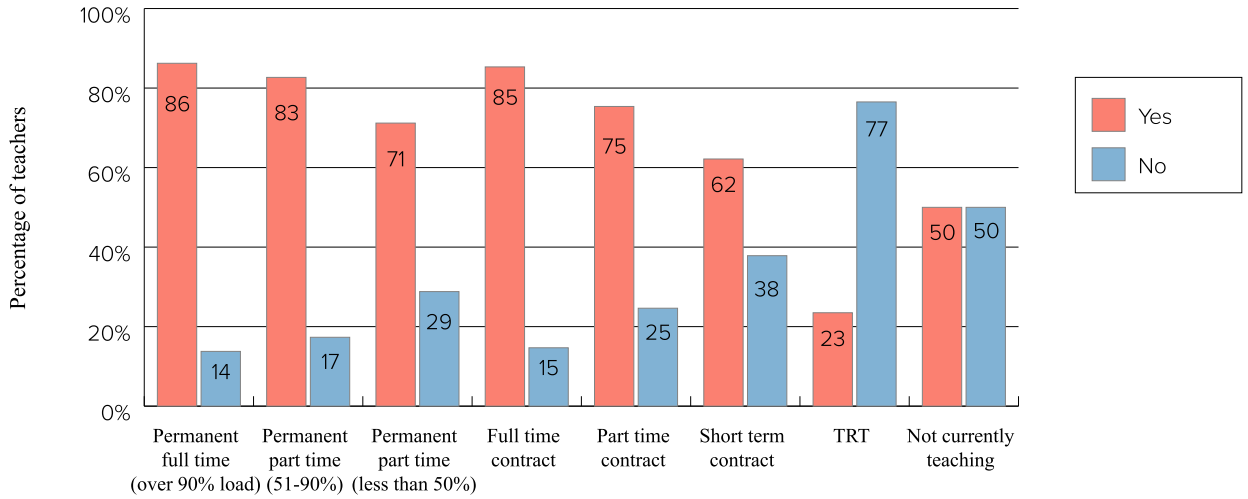


Figure 5.24 Scheduled time for activities across employment status (*n*=1 980) (Source: TALIS, OECD, 2013)

A Pearson's chi-square analysis of these data across employment status (excluding Not currently teaching) identified a highly significant result (overall chi-square 318.48, *p*=0.000, df=6). These differences were due to more Permanent (FT>90%) teachers selecting Yes with fewer No responses identified than expected. In contrast, fewer TRTs selected Yes with more opting for No than was expected. Additionally, fewer Full-time contract teachers opted for No than expected while more Short-term contract teachers selected No than expected. As with the discussion around cost, these findings demonstrate that those teachers not in schools on a regular basis are having to access professional learning during their own time.

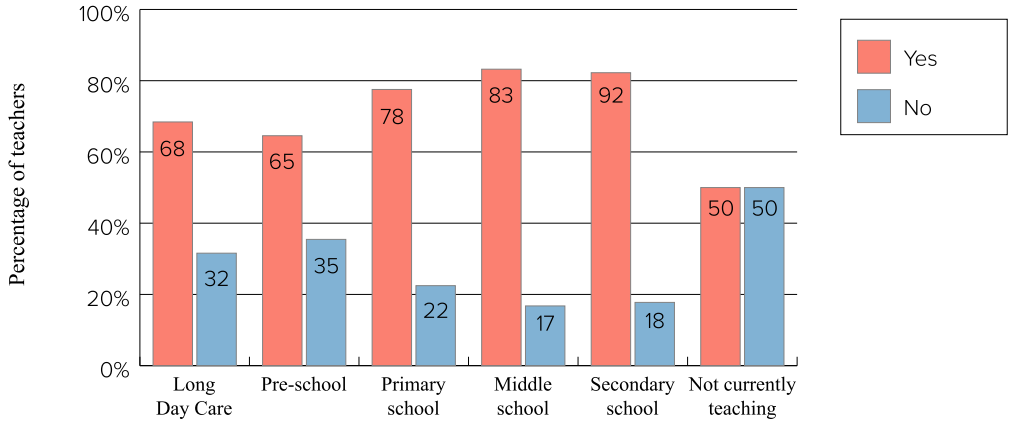


Figure 5.25 Scheduled time for activities across employment setting (*n*=1 980) (Source: TALIS, OECD, 2013)

A Pearson's chi-square analysis across employment settings identified a significant result (overall chi-square 83.05, *p*=0.000, df=5) with more Pre-school teachers selecting No than expected while fewer Secondary teachers selected No than expected. Teachers Not currently teaching are clearly quite different with more than expected opting for No and fewer selecting Yes for this item.

Similar comparisons across employment location (overall chi-square 3.8, *p*=0.434, df=4) and years of teaching (overall chi-square 4.05, *p*=0.34, df=4) identified no significant differences for this item.

Results for the construct, received "*A salary supplement for activities outside working hours*" across employment status' and employment settings are provided in Figures 5.26 and 5.27.

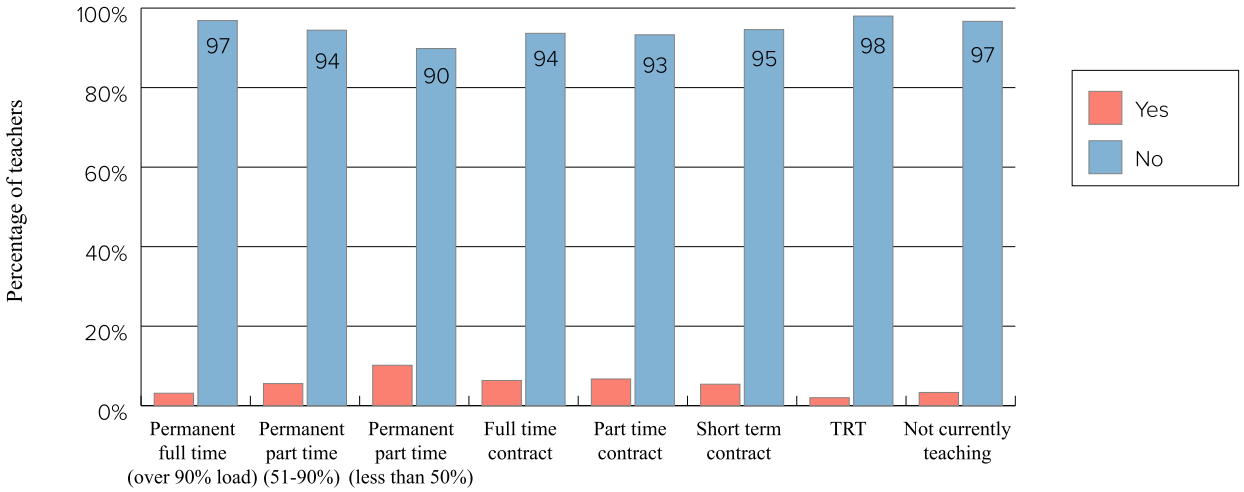


Figure 5.26 A salary supplement for activities outside working hours across employment status (n=1 980) (Source: TALIS, OECD, 2013)

The pattern demonstrated here is straight-forward with little variation apparent between the cohorts of teachers represented (excluding Not currently teaching). A Pearson chi-square analysis identified only a marginally significant difference (overall chi-square 15.01, p=0.02, df=6). This difference was due to fewer Permanent (FT>90%) selected Yes than expected and more Permanent (PT<50%) teachers selecting Yes than expected.

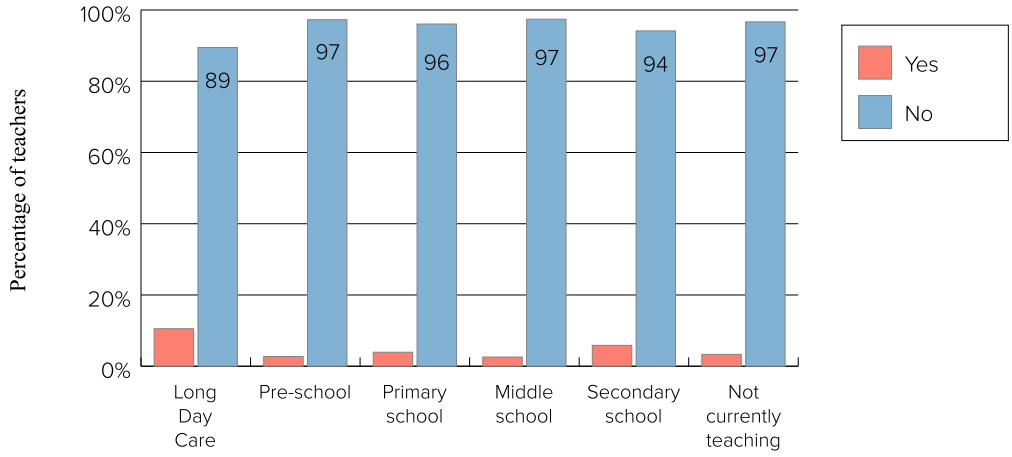


Figure 5.27 A salary supplement for activities outside working hours across employment setting (n=1 980) (Source: TALIS, OECD, 2013)

The pattern of results here is very similar to those for employment status with minimal variation evident. A Pearson's chi-square analysis across employment setting for this construct identified no significant differences in these data (overall chi-square 7.58, p=0.181, df=5).

An analysis between payment for professional learning and years of teaching identified no significant differences (overall chi-square 5.49, p=0.24, df=8) as did a comparison across employment location (overall chi-square 4.26, p=0.37, df=4).

Finally, a synthesis of results for the construct "*Non-monetary support for activities outside working hours*" across employment status and employment setting is presented in Figures 5.28 and 5.29. Examples of non-monetary support might include a reduced teaching load, days off in lieu, or some form of study leave.

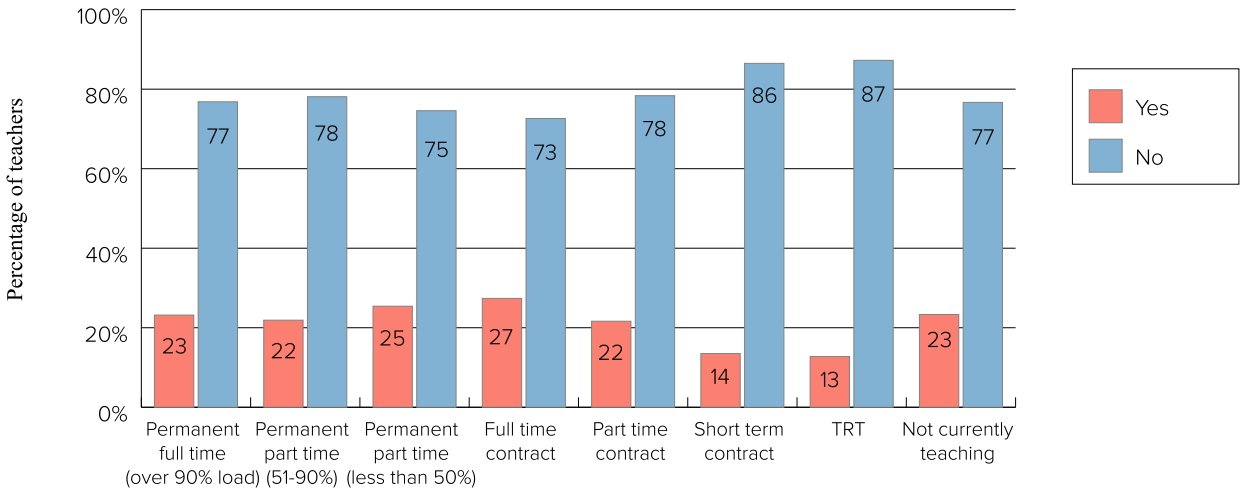


Figure 5.28 Non-monetary support for activities outside working hours across employment status (*n*=1 980) (Source: TALIS, OECD, 2013)

While the pattern of results presented as percentages demonstrate some variation across the cohorts of teachers, a Pearson chi-square test found only a marginally significant difference (overall 13.95, *p*=0.03, df=6). This was due to fewer TRTs selecting Yes than expected for this construct.

Looking at Figure 5.29 and the results across employment setting a similar pattern emerges with the exception of Long day care teachers. To test for statistical significance, a Pearson chi-square was undertaken with a highly significant difference identified (overall 17.67, *p*=0.003, df=6) solely for Long day care with significantly more teachers than expected selecting Yes for this option. Unfortunately, it is not possible to elaborate upon the reasons for this finding.

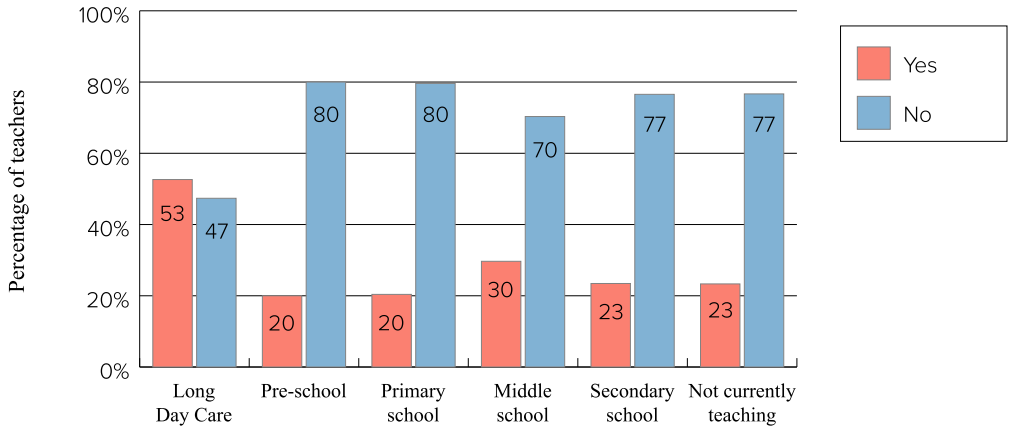


Figure 5.29 Non-monetary support for activities outside working hours across employment setting (*n*=1 980) (Source: TALIS, OECD, 2013)

Chi-square analyses for this construct in relation to years of teaching identified no significant differences (overall 4.51, *p*=0.34, df=4) as did employment location (overall 9.00, *p*=0.06, df=4

In considering the findings presented around challenges, it is interesting to note that much of the reference to professional learning refers specifically to Face-to-face opportunities as teachers explain cost, their inability to leave classes, the lack of availability of these sessions in their local area, or having to juggle

family commitments to attain the 60 hours of professional learning. Yet, it is possible for teachers to participate in Research, Study, Online learning and Communities of practice in their own schools to meet this requirement. Why is Face-to-face such a focus when it is very challenging for particular cohorts of teachers? As mentioned earlier in the report, it goes without saying that teachers prefer Face-to-face for the intellectual, professional, and social opportunities provided. However, for some teachers demonstrated by the results shared here, accessing it becomes especially difficult. While the TRB has provided the flexibility for teachers to take up any mode of learning that is relevant and of value to their own professional learning, the findings presented indicate that teachers in general have focused on Face-to-face sessions even if it created challenges in their day-to-day lives. Critically, input from teachers in the focus group interviews, suggests another major factor compounding this outcome was the teachers' apprehension around producing summaries of professional learning linked to evidence that would pass the benchmark for the audit by the TRB.

5.8 Areas of Interest or Need Identified by Teachers in Supporting their Professional Learning

In this section the following research question and subsidiary questions are discussed. As with the challenges, initial data around the needs of teachers were collected during the teacher conference held by the TRB in June 2015.

What areas of interest or need were identified by teachers in supporting their professional learning?

- What were the key areas of interest/need identified?
- Were differences identifiable across cohorts of teachers?

In a Nutshell

The needs of teachers in relation to professional learning did not emerge as a definite trend in the data as was the case for challenges. Some exceptions to this did occur with TRTs who are a very different cohort with significantly more of these teachers selecting Not applicable for particular needs provided in the survey. Full-time and Short-term contract teachers also accounted for some of these statistical differences across specific needs, such as *Assessment practices and evaluation of individual learning.*

Viewing the patterns for the actual needs indicates that *Behaviour strategies to manage the learning environment, Teaching individuals from different multicultural and/or diverse backgrounds*, and *Leadership and management* attracted the majority of significant differences across different cohorts of teachers. In most instances, these are easily explained around the levels of employment, such as the high levels of need demonstrated by TRTs and contract teachers for Behaviour Management. With needs analysed across employment status, employment setting, employment location, and years of teaching some needs appeared more relevant than others.

While these differences provide important directions in moving forward, so too are those needs that showed consistency across the cohorts of teachers. Examples of these included *Knowledge and understanding of relevant curriculum frameworks* and *Knowledge and understanding of particular subject areas.* Teachers elaborated on these needs in the open response item with 'Content knowledge' identified by 191 teachers. The most frequently cited areas included mathematics (f=28), humanities and

social sciences (f=28), sciences (f=21), the arts, drama and dance (f=20), languages including Greek, Italian, Japanese, German and Chinese (f=19), music (f=18), health and physical education (f=16) with remaining subject areas attaining a frequency of less than eight. When these needs were considered in light of the educational setting, with the exception of mathematics that represented Middle and Secondary teachers, half of the remaining comments were provided by primary teachers. These results indicate that teachers across the board are looking for the opportunity to ensure that they enhance their understanding of specific subject disciplines. Following considerable behind content was 'Curriculum' (f=87) and 'Teaching and learning strategies' (f=80). Again, these needs were specified across all cohorts of teachers with no definite patterns evident in the open responses.

During the focus groups the needs of teachers were explored further. While the difficulties of TRTs have permeated many of the findings in this report, their needs were also quite distinctive. As semi-retired, highly experienced practitioners who have been involved in education for many years in numerous positions including leadership (e.g., ex-Principals), they are very keen to pursue professional learning that is of direct interest. A number expressed the difficulty faced in actually finding relevant professional learning that was not more of what they have already participated in over many years. However, as an alternative to this highly experienced group of TRTs are the early career teachers who are trying to transition into full-time teaching. This group appears to have very different needs with many very keen to do as much as they can as it all seems highly relevant and necessary for them. Hence, this TRT group provides a challenging cohort of teachers with very experienced and discerning practitioners at one end of spectrum, and new practitioners who are looking for guidance and mentorship at the other end of the spectrum.

On the online survey, teachers were asked: "*My current professional learning needs include…*" Teachers were able to select one option from "*No need at present*", "*Low level of need*", "*Moderate level of need*", "*High level of need*", and "*Not applicable*". Results for this item are provided in Figure 5.30.

In general, these results highlight some areas that received over 50% selection for High/moderate levels of teacher need. In particular, 'Knowledge and understanding of curriculum frameworks' (57%); 'Assessment practices and evaluation of individual learning' (52%); 'ICT skills for teaching' (59%); and, 'Differentiating the curriculum for individuals with special needs' (56%).

A Pearson's chi-square test of these data across employment status identified a number of significant differences in the way that teachers responded to particular needs for professional learning. In order to analyse the full data set, each construct comprising the item (e.g., Knowledge and understanding of relevant curriculum frameworks) was tested separately in order to compare the five possible options available to teachers. The data for statistically significant differences for employment status are summarised in Tables 5.21-5.23 with 10 needs out of the total of 14 evident. If the need did not generate any significant differences, it was not included in the tables. Note that teachers Not currently teaching have been removed from this category as have been done consistently throughout the report.

The overall results presented in these tables highlight a few key patterns in the data. TRTs are clearly different with significantly more of these teachers selecting Not applicable for particular needs. Full-time and Short-term contract teachers also account for some of these statistical differences across specific

needs, such as ‘Assessment practices and evaluation of individual learning’. In the majority of instances, it was the Full-time contract teachers who required the need while the Short-term contract teachers opted for No need. Importantly, these differences might be expected given the level of comparable employment and the change in responsibilities of teachers as a direct consequence.

Viewing the patterns for the actual needs indicates that ‘Behaviour strategies to manage the learning environment’, ‘Teaching individuals from different multicultural and/or diverse backgrounds’, and ‘Leadership and management’ attracted the majority of significant differences across cohorts of teachers. In most instances, these are easily explained around the levels of employment, such as the high levels of need demonstrated by TRTs and contract teachers for behaviour management.

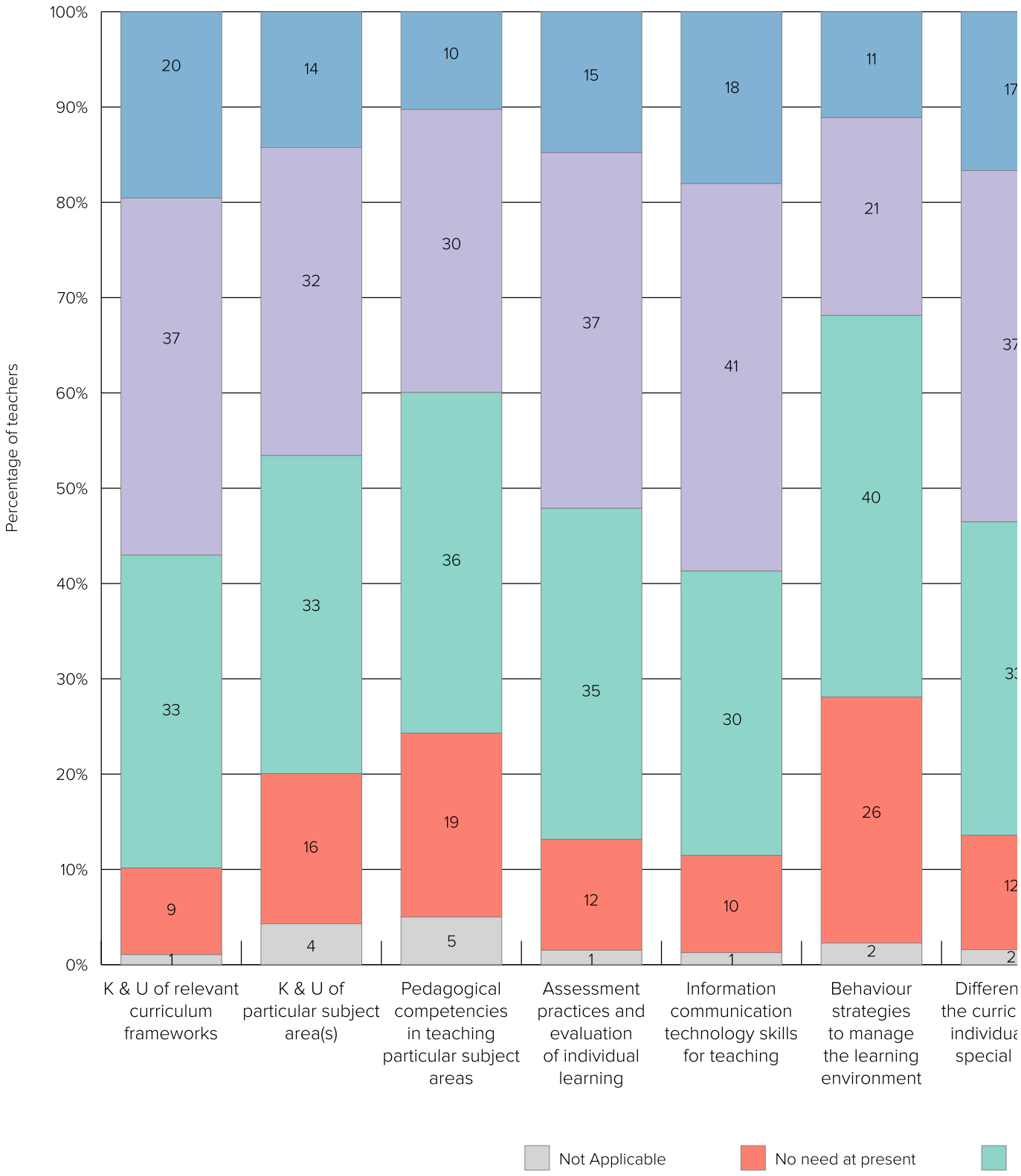
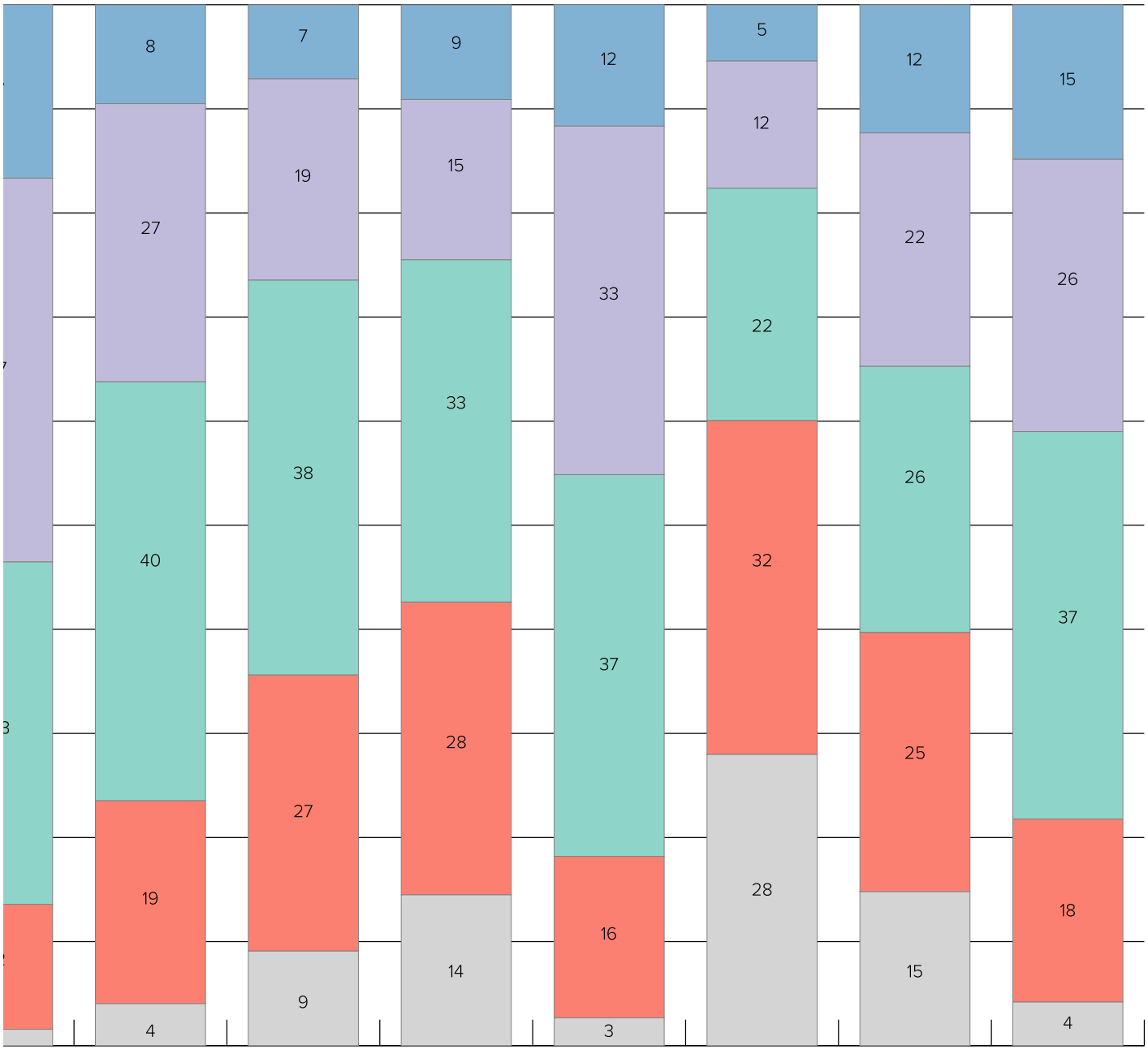


Figure 5.30 Needs of teachers around me (Source:



eting the professional learning requirement (*n*=1 980)
TALIS, OECD, 2013)

Table 5.21 Needs of teachers compared across employment status (1)

Options	Knowledge and understanding of particular subject area(s) Overall χ^2= 40.73 p=0.018, df=24	Pedagogical competencies in teaching particular subject areas (please specify in the comments box below) Overall χ^2= 52.10 p =0.001, df=24	Assessment practices and evaluation of individual learning Overall χ^2= 97.54 p =0.000, df=24	Behaviour strategies to manage the learning environment Overall χ^2= 89.57 p =0.000, df=24
Not applicable	• Fewer Perm (FT>90%) teachers selected this than expected • More TRTs selected this than expected	• Fewer Perm (FT>90%) teachers selected this than expected • More TRTs selected this than expected	• Fewer Perm (FT>90%) teachers selected this than expected • More TRTs selected this than expected	No differences
No need at present	No differences	No differences	• Fewer FT contract teachers selected this than expected • More Short-term contract teachers selected this than expected	• More Perm (FT>90%) teachers selected this than expected • Fewer PT contract teachers selected this than expected • Fewer TRTs selected this than expected
Low level of need	No differences	No differences	No differences	• Fewer TRTs selected this than expected
Moderate level of need	No differences	• More FT contract teachers selected this than expected	No differences	• Fewer Perm (FT>90%) teachers selected this than expected • More PT contract teachers selected this than expected • More TRTs selected this than expected
High level of need	No differences	No differences	• More FT contract teachers selected this than expected	• Fewer Perm (FT>90%) and Perm (PT51-90%) teachers selected this than expected • More FT contract teachers selected this than expected • More TRTs selected this than expected

Table 5.22 Needs of teachers compared across employment status (2)

Options	Differentiating the curriculum for individuals with special needs	Teaching individuals from diverse multicultural and/ or multilingual backgrounds	Teaching Aboriginal and Torres Strait Islanders	Incorporating play in the learning environment
	Overall χ^2= 39.30 p=0.025, df=24	Overall χ^2= 46.67 p=0.004, df=24	Overall χ^2= 49.30 p=0.002, df=24	Overall χ^2= 54.69 p=0.000, df=24
Not applicable	• More TRTs selected this than expected	No differences	No differences	• More Perm (FT>90%) teachers selected this than expected • Fewer TRTs selected this than expected
No need at present	• Fewer FT contract teachers selected this than expected	• More Perm (PT 51-90%) teachers selected this than expected • Fewer FT contract teachers selected this than expected	No differences	No differences
Low level of need	No differences	No differences	No differences	No differences
Moderate level of need	No differences	• Fewer Perm (PT 51-90%) teachers selected this than expected • More FT contract teachers selected this than expected	• More FT contract teachers selected this than expected	• More Perm (PT<50%) teachers selected this than expected
High level of need	• More FT contract teachers selected this than expected	No differences	No differences	• More Perm (FT>90%) teachers selected this than expected • More FT contract teachers selected this than expected

Table 5.23 Needs of teachers compared across employment status (3)

Options	Career guidance and/or counselling in centre/ school setting Overall χ^2= 63.35 p=0.000, df=24	Leadership and management skills Overall χ^2= 108.11 p=0.000, df=24
Not applicable	• More Perm (PT 51-90%) teachers selected this than expected	• More Perm (FT>90%) teachers selected this than expected • More Perm (PT<50%) teachers selected this than expected • More TRTs selected this than expected
No need at present	No differences	• Fewer Perm (FT>90%) teachers selected this than expected • More Perm (PT 51-90%) teachers selected this than expected
Low level of need	• Fewer Perm (PT 51-90%) teachers selected this than expected • More FT contract teachers selected this than expected	No differences
Moderate level of need	• Fewer Perm (PT 51-90%) teachers selected this than expected	No differences
High level of need	No differences	• More Perm (FT>90%) teachers selected this than expected • Fewer TRTs selected this than expected

The same form of analyses were undertaken across employment setting with significantly different results summarised in Tables 5.24-5.27. As above, only needs that were identified as statistically significant are presented here, which included 12 needs out of a total of 14. The first aspect to recognise is that more differences emerged around needs in this analysis than in relation to employment status.

Table 5.24 Needs of teachers compared across employment setting (1)

Options	Knowledge and understanding of relevant curriculum frameworks Overall χ^2= 88.04 p=0.000, df=20	Knowledge and understanding of particular subject area(s) Overall χ^2= 169.53 p=0.000, df=20	Pedagogical competencies in teaching particular subject areas (please specify in the comments box below) Overall χ^2= 168.32 p=0.000, df=20	Assessment practices and evaluation of individual learning Overall χ^2= 107.95 p=0.000, df=20
Not applicable	• More Not currently teaching selected this option than expected	• More Pre-school teachers selected this than expected • Fewer Secondary school teachers selected this than expected • More Not currently teaching selected than expected	• More Long day care, Pre-school and Not currently teaching selected this than expected • Fewer Secondary school teachers selected this than expected	• Fewer Secondary school teachers selected this than expected • More Not currently teaching selected this than expected
No need at present	• More Pre-school teachers selected this than expected	• Fewer Primary school teachers selected this than expected • More Not currently teaching selected this than expected	• Fewer Primary school teachers selected this than expected • More Secondary school teachers selected this than expected	• Fewer Primary school teachers selected this option than expected • More Not currently teaching selected this than expected
Low level of need	• Fewer Secondary school teachers selected this than expected	No differences	• More Primary school teachers selected this than expected • Fewer TRTs selected this than expected	• More Pre-school teachers selected this option than expected
Moderate level of need	No differences	• Fewer Pre-school teachers selected this option than expected	No differences	No differences
High level of need	• Fewer Long day care teachers selected this than expected	No differences	No differences	• Fewer Middle school teachers selected this option than expected

Table 5.25 Needs of teachers compared across employment setting (2)

Options	Information communication technology skills for teaching Overall χ^2= 41.84 p=0.003, df=20	Behaviour strategies to manage the learning environment Overall χ^2= 114.85 p=0.000, df=20	Differentiating the curriculum for individuals with special needs Overall χ^2=79.77 p=0.000, df=20	Teaching individuals from diverse multicultural and/ or multilingual backgrounds Overall χ^2= 50.26 p=0.000, df=20
Not applicable	• More Pre-school teachers and Not currently teaching selected this than expected	• More Not currently teaching selected this than expected	• More Not currently teaching selected this than expected	• Fewer Secondary school teachers selected this than expected • More Not currently teaching selected this than expected
No need at present	No differences	• Fewer Pre-school teachers selected this than expected • More Secondary school teachers selected this than expected	• More Not currently teaching selected this than expected	No differences
Low level of need	No differences	• Fewer Long day care teachers selected this than expected • More Not currently teaching selected this than expected	No differences	• Fewer Not currently teaching selected this than expected
Moderate level of need	No differences	• More Long day care and Pre-school teachers selected this than expected • Fewer Secondary school teachers selected this than expected	No differences	• More Not currently teaching selected this than expected
High level of need	No differences	• More Long day care teachers selected this than expected • Fewer Secondary school teachers selected this than expected	No differences	• More Long day care selected this than expected

Table 5.26 Needs of teachers compared across employment setting (3)

Options	Teaching Aboriginal and Torres Strait Islanders Overall χ^2= 44.00 p=0.002, df=20	Incorporating play in the learning environment Overall χ^2= 363.69 p=0.000, df=20	Teaching cross-curricula skills – i.e., problem-solving, creativity Overall χ^2= 101.25 p=0.000, df=20	Career guidance and/or counselling in centre/school setting Overall χ^2= 91.82 p=0.000
Not applicable	No differences	• Fewer Pre-school and Primary school teachers selected this than expected • More Secondary school teachers selected this than expected	• Fewer Primary school teachers selected this than expected • More Not currently teaching selected this than expected	• More Pre-school and Primary school teachers along with those Not currently teaching selected this than expected • Fewer Secondary school teachers selected this than expected
No need at present	No differences	• More Secondary school teachers selected this than expected	• Fewer Primary school teachers selected this than expected	No differences
Low level of need	• Fewer Not currently teaching selected this than expected	• More Primary school teachers selected this than expected • Fewer Secondary school teachers selected this as expected	No differences	• More Secondary school teachers selected this than expected
Moderate level of need	• More Not currently teaching selected this than expected	• More Primary school teachers selected this than expected • Fewer Secondary school teachers selected this than expected	No differences	• Fewer Primary school teachers selected this than expected • More Secondary school teachers selected this than expected
High level of need	• More Long day care teachers selected this than expected	• More Long day care, Pre-school, Primary school teachers selected this than expected • Fewer Secondary school teachers selected this than expected	• More Long day care teachers selected this than expected	No differences

Table 5.27 Needs of teachers compared across employment setting (4)

Options	Leadership and management skills Overall χ^2= 62.18 p=0.000, df=20
Not applicable	• More Primary school teachers and Not currently teaching selected this than expected • Fewer Middle and Secondary school teachers selected this than expected
No need at present	No differences
Low level of need	No differences
Moderate level of need	• More Long day care and Middle school teachers selected this than expected • Fewer Primary teachers selected this than expected
High level of need	No differences

The needs that attracted the majority of statistical differences included 'Knowledge and understanding of particular subject areas', 'Assessment practices and evaluation of individual learning', 'Behaviour strategies to manage the learning environment', and 'Incorporating play in the learning environment'. Unlike employment status, these results do not identify particular patterns for cohorts in relation to employment setting. Teachers Not currently teaching are recognisable as a cohort although a clear trend does not occur in the same way as TRTs did for employment status. Overall, these statistical differences are not surprising in that they make sense given the different contexts in which the teachers are working. For example, 'Incorporating play in the learning environment' is not likely to be highly relevant to Secondary teachers, hence the high incidence of Not applicable for these teachers.

The same data were compared using chi-square tests across employment location with Table 5.28 presenting only those constructs for this item where statistically significant results arose. However, for the analysis, Interstate and Overseas teachers were removed from the sample as has been done with similar analyses throughout this report. Compared to employment status and employment setting, only three needs resulted in statistically significant differences.

Table 5.28 Needs of teachers compared across employment location

Options	Teaching individuals from diverse multicultural and/or multilingual backgrounds Overall χ^2= 34.12 p=0.000, df=8	Teaching Aboriginal and Torres Strait Islanders Overall χ^2= 36.36 p=0.000, df=8	Career guidance and/or counselling in centre/school setting Overall χ^2= 22.62 p=0.004, df=8
Not applicable	• More Country teachers selected this than expected	No differences	No differences
No need at present	• More Country teachers selected this than expected	No differences	No differences
Low level of need	No differences	No differences	No differences
Moderate level of need	No differences	No differences	• More Remote teachers selected this than expected
High level of need	• More Remote teachers selected this than expected	• More Remote teachers selected this than expected	No differences

Clearly, 'Teaching individuals from diverse multicultural and/or multilingual backgrounds' resulted in the majority of difference across employment location. However, the findings here are confusing in that more Country teachers opted for Not applicable and No need at present for this need while more Remote teachers selected High level of need. Without additional data it is not possible to explain these views further.

The data were also considered across years of teaching to identify a number of significant differences in relation to eight of the need constructs included in the online survey. A summary of these differences pertaining to eight needs out of a total of 14 is provided in Tables 5.29-5.30.

Table 5.29 Needs of teachers compared across years of teaching (1)

Options	Assessment practices and evaluation of individual learning Overall χ^2= 32.24 p=0.009, df=16	Information communication technology skills for teaching Overall χ^2= 70.66 p=0.000, df=16	Behaviour strategies to manage the learning environment Overall χ^2= 77.07 p=0.000, df=16	Differentiating the curriculum for individuals with special needs Overall χ^2= 40.94 p=0.001, df=16
Not applicable	No differences	• More 3-6 years teachers selected this than expected	No differences	No differences
No need at present	• Fewer 0-3 years teachers selected this than expected	• More 0-3 and 3-6 years teachers selected this than expected • Fewer Over 15 years selected this than expected	• Fewer 0-3 years teachers selected this than expected • More Over 9 years teachers selected this than expected	No differences
Low level of need	• Fewer 0-3 years teachers selected this than expected	• More 6-9 years teachers selected this than expected • Fewer Over 15 years teachers selected this than expected	No differences	• Fewer 0-3 years teachers selected this than expected
Moderate level of need	• More 0-3 years teachers selected this than expected	• Fewer 6-9 years teachers selected this than expected • More Over 9 years selected this than expected	• More Over 15 years teachers selected this than expected	• More 0-3 years teachers selected this than expected
High level of need	No differences	• More Over 15 years selected this than expected	• Fewer Over 15 years teachers selected this than expected • More 0-3 years teachers selected this than expected	• More 0-3 years teachers selected this than expected

Table 5.30 Needs of teachers compared across years of teaching (2)

Options	Teaching individuals from diverse multicultural and/ or multilingual backgrounds Overall χ^2= 53.05 *p*=0.000, df=16	Teaching Aboriginal and Torres Strait Islanders Overall χ^2= 66.61 *p*=0.000, df=16	Incorporating play in the learning environment Overall χ^2= 42.77 *p*=0.000, df=16	Career guidance and/ or counselling in centre/school setting Overall χ^2= 40.62 *p*=0.001, df=16
Not applicable	No differences	No differences	• Fewer 0-3 years teachers selected this than expected • More Over 15 years teachers selected this than expected	No differences
No need at present	• Fewer 0-3 years teachers selected this than expected • Fewer 6-9 years teachers selected this than expected	• Fewer 0-3 years teachers selected this than expected	No differences	• Fewer 0-3 years teachers selected this option than expected
Low level of need	• Fewer 0-3 years teachers selected this than expected	No differences	No differences	• More 0-3 years teachers selected this option than expected
Moderate level of need	• More 0-3 years teachers selected this than expected	• More 0-3 years teachers selected this option than expected	• More 0-3 years teachers selected this than expected	• More 0-3 years teachers selected this than expected • Fewer Over 15 years teachers selected this than expected
High level of need	• More 0-3 years teachers selected this than expected	• More 0-3 years teachers selected this option than expected	No differences	No differences

Looking at these results the need that attained most statistical differences was 'ICT skills for teaching'. These differences indicate that teachers with 0-3 and 3-6 years of teaching experience selected either No or Low levels of need while teachers with more than 15 years teaching experience opted for High level of need. In contrast, it is the teachers with fewer years of teaching that generally selected Moderate or High levels for the other needs available.

To ensure that all possible needs were identified, teachers were provided with an open item: "*Other professional learning needs not identified above? Please specify and add additional comments*". The responses were coded into themes with the number of teachers stating each need/interest tallied to produce frequency of responses for each of the themes. A summary of these findings is provided in Figure 5.31. In total, 468 teachers provided comments that were coded to create 572 pieces of data with a number of comments including two or more needs.

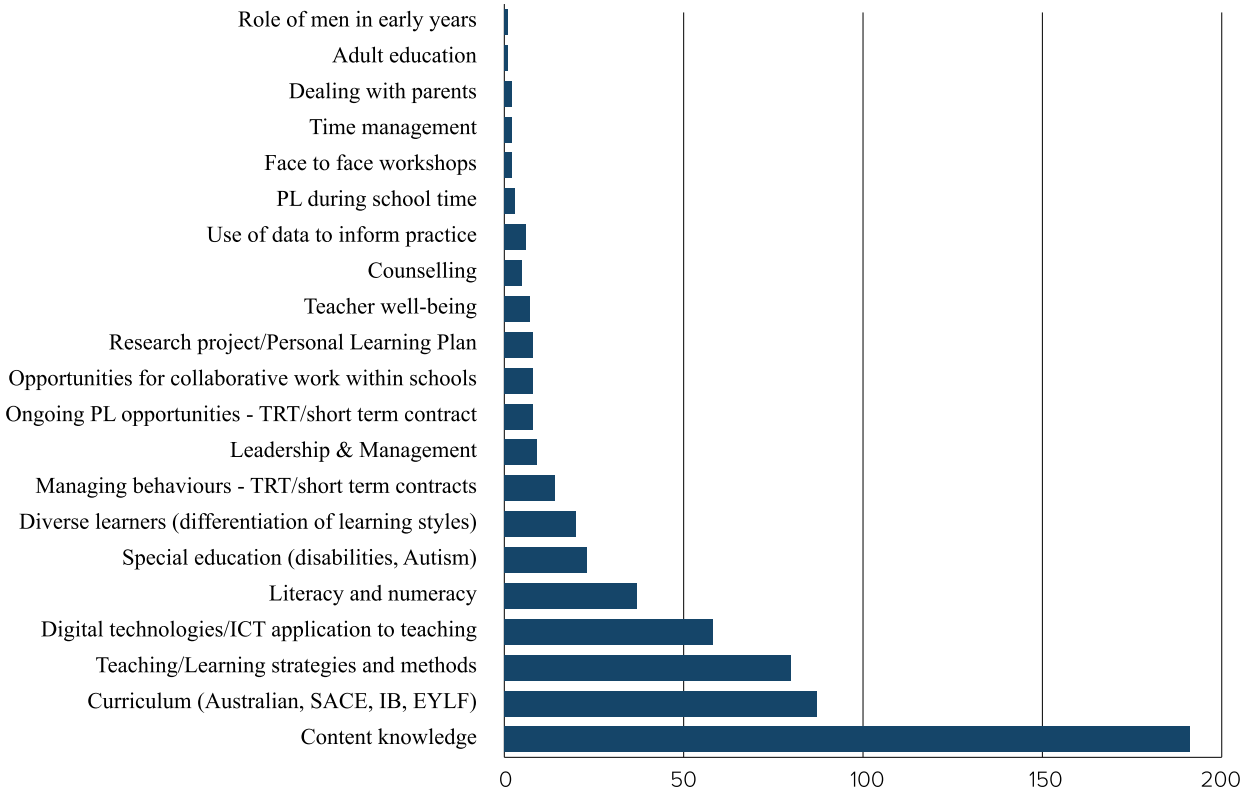


Figure 5.31 Summary of needs as frequencies emerging from teacher responses (*n*=468)

A clear area of need here is professional learning around Content knowledge (191 responses). The most frequently identified content areas included mathematics (*f*=28), humanities and social sciences (*f*=28), sciences (*f*=21), the arts, drama and dance (*f*=20), languages including Greek, Italian, Japanese, German and Chinese (*f*=19), music (*f*=18), health and physical education (*f*=16) with remaining subject areas less than eight in frequency. When these needs are considered in light of educational setting, with the exception of mathematics that represented Middle and Secondary teachers, half of the remaining comments were provided by primary teachers. These results indicate that teachers are looking for the opportunity to ensure that they enhance their understanding of subject disciplines. As noted in Figure 5.31, Literacy and numeracy were coded separately in the analysis with *f*=37 of these comments specially provided by primary teachers.

The second most noted area of need for all teachers was Curriculum (*f*=87), followed by Teaching/learning strategies (*f*=80). Again, these needs were cited by all teachers including Long day care right through to Secondary teachers. The fourth key need was for Digital technologies, with representation by teachers across all educational settings.

The focus groups provided further opportunities to explore the areas of need with teachers. While the difficulties of TRTs have permeated many of the findings in this report, their needs were also quite distinctive. The following quote encapsulates some of the feelings expressed during interviews and shared in comments from the online surveys:

> *For the most part the journey of building up 60 hours of professional learning was a very lonely one. I am currently a temporary relief teacher and the lack of professional networking opportunities for people like me in this space was tricky. Throughout this experience, I never really felt the same sort of support that other professionals get when they are a part of a staff body. Moving forward from here I think it is also important that professional workshops and conferences have some sort of subsidy for those like me, who are not working full-time so that they are more accessible.*

Given that many TRTs are semi-retired and highly experienced practitioners who have been involved in education for many years in numerous positions including leadership (e.g., ex-Principals), they are very keen to pursue professional learning that is of direct interest. A number expressed the difficulty they faced in actually finding relevant professional learning that was "*not more of what they have already participated in*" over many years. However, as an alternative to this highly experienced group of TRTs are the early career teachers who are trying to transition into full-time teaching. This group appears to have very different interests with many very keen to do any professional learning they can as it all seems highly relevant and necessary for them. Hence, this TRT group provides a challenging cohort of teachers with very experienced and discerning practitioners at one end of spectrum, and new practitioners who are looking for guidance and mentorship at the other end.

5.9 Response to the TRB's Communications Strategy around Professional Learning Requirements

As part of the Professional Learning Project, the TRB developed an extensive evaluative strategy in order to support teachers and principals in communicating the changing requirements regarding professional learning. Within this section, data are presented around the types of activities undertaken along with participant engagement with these activities in 2015.

What was the response to the TRB's communications strategy in disseminating information to teachers in South Australia around new professional learning requirements?

- What were attendances at the information sessions and conference?
- What was the feedback from the information sessions provided by TRB to teachers across the state and the one-day conference?
- What was the level of teacher accessibility with the TRB website, online portal, and social media?
- What feedback around the auditing and evaluation process was provided by teachers?
- How might this process be enhanced?

In a Nutshell

Information sessions were conducted by TRB staff at 12 regional locations with 19 sessions for professional leaders and registered teachers between 28th April and 18th June 2015. In total, 1 011 teachers attended these sessions with 113 participants at the leaders' sessions. Feedback from these information sessions and the TRB conference in June 2015 was extremely positive with teachers providing specific comments about their usefulness in their survey responses and during the focus group interviews.

The Teachers Portal was promoted heavily during the information sessions with favourable feedback and interest received from teachers. Of the 9 210 teachers who renewed their registration during the latest renewal period, 6 682 teachers representing 75% of the cohort used the portal to submit their learning summaries. The teachers who used the portal spoke positively about it even though there were some initial technical issues for some teachers. Alternatively, a few teachers preferred to submit their summaries as hardcopies using either the TRB template or ones they generated.

In general, most teachers responded favourably to the request for submission of professional learning summaries as part of the evaluation. While there was some degree of "*initial anxiety*" about the audit component of the evaluation given the new requirements around professional learning, most teachers understood the change. However, there was also a small minority that considered the audit undermined their professionalism as teachers.

A number of minor issues were identified by a very small number of teachers during the evaluation related to timing, inability to access the online surveys, and understanding how the randomness of the sample was determined. Each of these issues was dealt with when raised by teachers in their emails or telephone calls. However, the most pervasive issue that emerged was in relation to confusion of teachers in navigating the requirements between employer expectations around professional learning and those of the TRB.

5.9.1 Attendances at professional learning information sessions and conference

Information sessions were conducted by TRB staff at 12 regional locations with 19 sessions for professional leaders and registered teachers between 28th April and 18th June 2015 (Table 5.31). A total of approximately 1011 teachers attended with 113 participants at the leader's sessions.

Table 5.31: Summary professional sessions conducted by TRB in 2015

Activity	Date	Numbers	Location	Details
Professional Learning Reference Group	31/03/2015	13	TRB, Adelaide	Representatives from various cohorts of teachers met to discuss some of the challenges confronting teachers in meeting the needs of the PL requirements
Teacher Conference	5/06/2015	230	Free available to all teachers across South Australia	Format included two keynote speakers and three workshops conducted with Early Childhood, Primary and Secondary Teachers to inform teachers about professional learning requirements.
Teacher Professional Learning and Transitioning from Provisional to (full) Registration sessions	28/4/2015 to 18/6/15	1011	Regional 12 site locations across South Australia to include the following towns: Murray Bridge, Victor Harbour, Naracoorte, Mount Gambier, Port Pirie, Kadina, Berri, Nuriootpa, Port Augusta, Whyalla, Cleve, Port Lincoln, Port Neill, Cooper Pedy, Kingscote (KI).	Information sessions to teachers with a focus on the professional learning requirements around registration. A Q&A session allowed teachers to get answers directly from the TRB staff.
Leaders Information sessions	28/4/2015 to 18/6/15	113	Regional locations across South Australia (see above)	Information sessions to inform Principals of the process in moving staff from provisional to full registration.
Teacher Professional Learning and Transitioning from Provisional to (full) Registration sessions	6/7/2015 to 17/7/2015	750	Metropolitan locations including Gawler, Modbury, Mount Barker/ Hahndorf and Noarlunga	As above
Teacher Professional Learning and Transitioning from Provisional to (full) Registration sessions	1/3/2015 to 30/09/2015	350	Seven presentations at local schools, conferences and professional associations (e.g., Glenelg Primary School)	As above

These data identify that the communication strategy implemented by the TRB staff has resulted in a substantive number of Face-to-face presentations across South Australia in 2015. These sessions provided teachers with the opportunity to hear first-hand, in their local contexts, the changing requirements around professional learning as part of teacher registration. Feedback from these information sessions and the conference were extremely positive, with teachers including these opportunities in the professional learning summaries and making specific comments about their usefulness, in their survey responses and during the focus group interviews.

> *The TRB session was extremely helpful as it helped dispel many of the myths out there!*

> *Thank you to the TRB for the sessions as they really helped get me on the right track with my PL. I was also able to help other teachers too in the school.*

> *I found these sessions so useful and tried to get other staff to go but some of them are not due to renew so surprisingly didn't think it was directly relevant to them right now. But all the information just addressed all the needs plus allowed us to ask the questions we had and then to hear the responses to other questions.*

Attending the TRB professional learning conference this year was also greatly beneficial!

The commitment of the TRB to building this communication strategy is evidenced by the second teacher conference on 12th August 2016.

5.9.2 TRB Website including online portal

An upgrade of the TRB website was undertaken to include a dedicated professional learning tab with links to relevant professional learning, information and resources. The Teachers Portal is a dedicated secure section with individual accounts established for teachers to access their personal details and record their professional learning over the renewal period. The portal and this feature were promoted heavily during the information sessions with favourable feedback and interest received from teachers. Of the 9 210 teachers who renewed their registration, 6 682 teachers representing 75% of the cohort used the portal to submit their learning summaries for the evaluation. The number of teachers accessing the portal and building their summaries altered dramatically over time as TRB staff suggested use of the portal during phone conversations and the TRB information sessions. Figure 5.32 provides a summary of the involvement of teachers renewing their registration during this period with the portal from September to late December 2015 (i.e., the last three months prior to close of renewal).

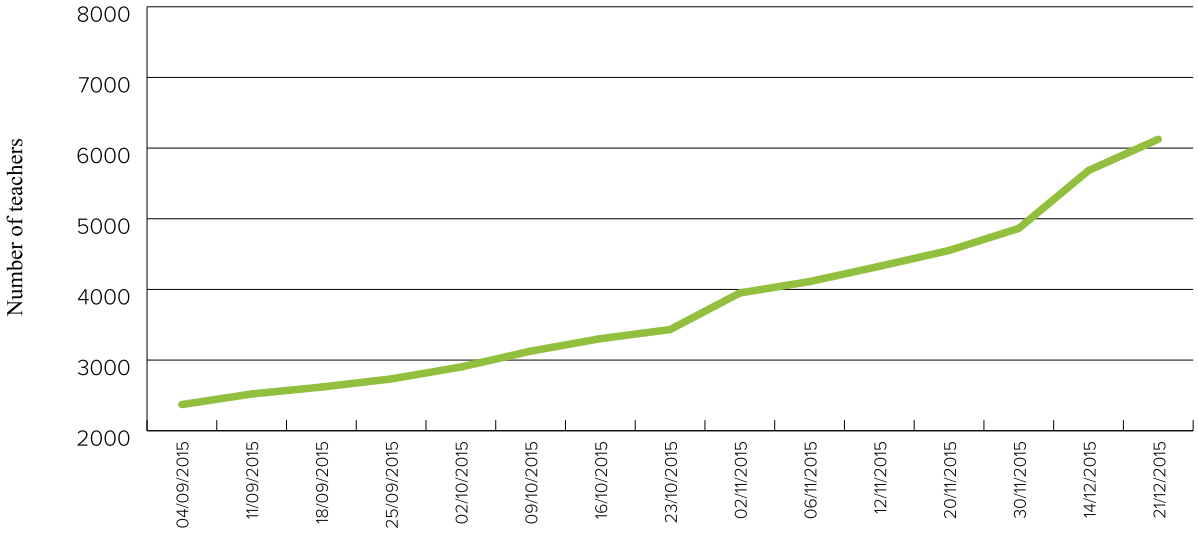


Figure 5.32 Overview of online portal access by renewal group of teachers September-December 2015

During the focus group interviews, the majority of teachers who used the portal for submission of summaries spoke highly about ease of use of the platform. While there was some angst shared about gaining access to the portal initially, most teachers were confident in their use of the portal once their accounts were established. A number of teachers spoke about how the printed versions of their professional learning summaries were used in other ways, such as inclusion in their Curricula Vitae and/or taxation folders to help identify costs associated with some of the activities they had undertaken.

I was pleasantly surprised by the portal once I got on.

Fantastic!

However, there were teachers who preferred to complete their professional learning in hardcopy format. For some this was merely a preference, while other teachers highlighted difficulties associated with the internet crashing at school and losing their entries. Interestingly, a small minority of teachers who attended the focus group interviews were unaware that the online portal was available for use. Generally, these teachers were TRTs but not all.

A number of teachers currently studying explained they found it difficult to compartmentalise their study so that it could be entered through the online portal. For example:

> *Unspecified area on portal for formal post grad study. I have completed a Master of Visual Art during this 3 year period, but found it almost impossible to document the amount of hours and professional learning inherent in this study, due to the portal set-up. I would recommend a section entirely devoted to formalised post grad study where sections were set out for micro documentation of study.*

Part of the issue here is in being able to sub-divide the Study into appropriate chunks for alignment to the standards. Teachers with similar issues had contacted the Project Officers, Professional Standards at the TRB, and were talked through how to enter their individual study so that it demonstrated a range of professional learning while making alignment to the appropriate standards simpler.

A summary of website usage from October 2015 to late January 2016 is provided in Table 5.32. As observed here, 14.75% of all visits to the website were by teachers seeking information about professional learning.

Table 5.32 Teacher access of professional learning pages on TRB website

Teachers N=138 557*	%	Professional learning related pages
8 374	6.10	Renewal requirements
2 184	1.60	About professional learning
1 927	1.40	Videos of professional learning requirements
1 840	1.30	Professional learning evidence requirements
1 717	1.20	Range of professional learning opportunities
1 206	0.90	Renewal evaluation information
1 101	0.80	Referencing to the standards
638	0.50	Learning guidelines
527	0.40	Professional learning resources
462	0.33	Learning links
459	0.30	What is professional learning?
Total= 20 435	14.75	Visits to ALL professional learning resources

* Represents the total number of teachers accessing ALL information on website

5.9.3 Other lines of communication

TRB Facebook and Twitter accounts were also launched to promote professional learning opportunities and information sessions conducted by the TRB and other educational stakeholders (e.g., DECD). Facebook provides an avenue for the TRB to share examples of professional learning opportunities with

teachers while allowing questions to be shared. However, the interaction has tended to involve one-way communication with few teachers pursuing it as a forum for asking questions or sharing with other teachers. In contrast, teachers tend to access other Facebook sites to engage in this more fundamental interaction e.g., Teachers of Adelaide, Relief Teachers of Adelaide. Twitter did not generate much interaction at all with teachers.

Professional learning information and opportunities were promoted also through the Registration Buzz, which was sent via an email to teachers every fortnight. During the focus group interviews, teachers spoke highly about this means of communication for informing them about possible professional learning opportunities.

5.9.4 Audit and evaluation process

In general, most teachers responded favourably to the request for the submission of professional learning summaries as part of the evaluation. While there was some degree of "*initial anxiety*" about the audit part of the evaluation given the new requirements around professional learning, most teachers understood the change.

> *I find Professional Learning highly rewarding and agree with the ideology that goes with it. It seems a natural process in Life-long learning. We all find different areas of teaching/ learning that resound with us & we want to follow through with it to further our skills & understanding.*

> *Professional learning is part of being a competent educator. It is difficult sometimes due to family responsibilities but it is worth it in the long run to improve my knowledge and skills as a teacher. It is good to be challenged as a teacher and to build on a repertoire of skills and knowledge.*

> *I found producing the [professional learning summary] document a really rewarding exercise .. and I think anything that this document can provide me in my professional life, to hand over to a head of faculty or a principal or somebody else would be a good thing.*

However, not all teachers perceived it so positively as articulated in comments made on the online surveys.

> *We truly do not have the time and mindfulness to record all those minor professional learning activities that have happened or are happening. I believe most teachers have done more than what they have recorded. Without PD, it is simply not functional for any active teacher at today school environment. For example, every teacher has to upgrade their ICT skills every day because every software is upgrading all the time. I saw some old teacher spent hours after school behind their screen to figure out the new features in their running system. And it is not right to ignore all these efforts and hard-working, is it? Why are we still so mean to ask for the 60 hours within 3 years? Come on, let's reduce the paper work for marking and more meaning class work.*

> *There is no problem in obtaining 60 hours of professional learning... am I wrong to assume that most teachers do far in excess of the required 60 hours which indicates they are a professional organisation of learners and not because we have to be? I expect many people*

like me did not continue with a full listing of the professional learning they undertook once they had reached sufficient hours for registration e.g. when I realised I had listed 124.5 hours I did not continue to include all the additional hours of training I did as it was not necessary. I am surprised that schools and principals do not be trusted to manage the professional learning of staff... I am further surprised that despite being professionals we are not entrusted to be responsible for ongoing learning... surely this is something that should occur as part of professional dialogue between principals and staff... it feels like we have been enmeshed in a climate of distrust.

> *Has the Board considered the worthiness of this activity and offset that against what teachers gain from the activity? Has the Board considered how teachers are most certainly time-poor and stretched beyond limits presently? Has the Board time-trialled the record-keeping to determine that it's feasible for any teacher, let alone a full-time teacher? Has the Board considered that schools have implemented their own strategies to ensure the integrity of teachers' professional development is maintained? Has the Board considered that our site already has in place a strategy to ensure its teachers are accountable? Has the Board considered that at X annual review(s) of every teacher is undertaken with their line-manager/Deputy or Principal and the year is discussed against the Australian Standards? That evidence must be accounted for? That detailed records are kept and plans for the future are implemented? Perhaps the Board could investigate best practice at School X as a bench-mark? I bring these questions to you in the hope that as the Board rolls out the new expectations, perhaps there may be a mechanism to assure its teachers that we are already developing professionally, that we have integrity to complete the tasks appropriately and that a true "summary" as a listed record, endorsed by the school should suffice to maintain registration".*

Hence, the new requirement to document professional learning has produced mixed views from teachers with some perceiving it as just formalising what they already do while others consider that it actually questions the professionalism of teachers and requires duplication of what already exists in some schools.

Comments either made by teachers during the focus group interviews or from emails received during the evaluation process identified the following issues along with some of the immediate actions taken by the TRB to deal with teacher concerns.

1. Timing of the year:
   Some of the initial batches for the evaluation required submission while teachers were on leave (e.g., over January). This was difficult in that teachers did not access their work emails, which may have been the contact address provided to the TRB. For others, their evidence/notes around their professional learning were kept on the school premises so were inaccessible until school returned.
   ACTION: Teachers in these circumstances were given extensions of time in order to complete the evaluation requirements in a timely manner. These teachers were transferred onto a late evaluation batch so that the remaining data could be collated and analysed to keep the process moving forward.

2. Wording of emails:
   A very small number of teachers complained that the initial email sent to teachers regarding their selection for the evaluation was too authoritarian as it stated what could happen should the

professional learning summaries not be submitted.
ACTION: The wording was modified slightly without removing the statement as it was determined that clear notification of the potential consequences for non-compliance is a necessary TRB requirement.

3. Issues with a few teachers in accessing the online surveys:
   A few teachers responded initially of their inability to access the online survey, which was provided via a link in the email sent to selected teachers.
   ACTION: In most instances it was because teachers were either not clicking on the link or that the link had been lost in transit. The issue was rectified immediately by sending individual emails with the embedded link identified clearly for each affected teacher.

4. Lack of acceptance of randomness of the evaluation:
   A number of teachers sought clarification as to how the selection of the sample for the evaluation was undertaken to ensure randomness. For example, one teacher was particularly interested given that "*two of us from my school are doing the evaluation*".
   ACTION: The Manager, Policy and Strategic Development, addressed these concerns via email or telephone explaining the selection process. Additionally, the process was clarified with each group of teachers who participated in the focus group interviews so that they were able to share the information with teachers at their schools.

A major ongoing issue for many teachers articulated during the focus group interviews, but already identified as problematic for teachers within the TRB, was the lack of alignment between employer and TRB requirements. For example, DECD require teachers to complete 37.5 hours of professional learning with the proviso that this is undertaken after hours to compensate for time at the end of the school year. However, the TRB accept all professional learning whether undertaken during or after school hours. This difference caused considerable confusion among teachers who either assumed they could only count after school professional learning, or, had to complete a further 60 hours of professional learning over three years in addition to the DECD requirement. There is some clarity required here, which is going to take time and a shared communication strategy between the TRB and teacher employers.

In closing, there was one additional insight gained from teachers and this was that those who had successfully submitted their professional learning summaries were not notified of this outcome. Hence, a final email to these teachers would have provided the sense of closure that a number shared during the focus group interviews that they felt was missing from the process.

6 Conclusions and Recommendations

The evaluation of teachers renewing registration 2015-2016 identified a number of key findings around the professional learning undertaken by teachers throughout their renewal period. In this section, a summary of the major insights are provided in relation to the actual audit of professional learning summaries and each of the seven research questions.

Audit of professional learning summaries

The audit identified a number of issues in the majority of summaries, even those considered to have met the benchmark established by the TRB project team for this first experience. A key finding was that a proportion of teachers did not discriminate between their roles and responsibilities as a teacher and their own personal professional learning. While there are likely to be 'shades of grey' in some instances, this is where the annotation in relation to the standards becomes critical. Further confusion was evident with work undertaken after hours (e.g., a school camp) submitted as professional learning when it is professional practice.

A concern for the TRB is that teachers did not receive feedback regarding their summaries so there may be teachers who now consider that the activities submitted were acceptable when inappropriate activities were actually deleted from the 60 hours during the audit process. However, given that most teachers had submitted an excess of 60 hours, they still successfully met the benchmark. It was clear from the telephone calls, comments made by teachers on the survey and during the focus group interviews that teachers are being confronted with conflicting information from many different sources (not the TRB) with many teachers not seeking clarification regarding their questions from staff from the TRB.

RQ1: What is the nature of the professional learning experiences undertaken by the teachers sampled?

The evaluation found evidence of the five modes of learning currently used by the TRB in its communication in the kinds of activities submitted by teachers. Face-to-face was clearly the preference of all teachers regardless of their employment status, employment setting, employment location and years of teaching determined by statistical comparisons. Of interest was the low proportion of teachers providing learning activities that aligned to the mode of Online learning.

These findings are surprising given the difficulty of particular cohorts of teachers, such as those employed in Country or Remote locations; TRTs along with those Not currently teaching. While teachers clearly prefer Face-to-face for a variety of reasons as validated by individual items on the survey, there was the added anxiety shared by teachers about having to produce evidence of professional learning if required. Hence, this was likely a confounding factor in the results presented in this evaluation.

RQ2: What impact did teachers perceive these learning experiences had on their professional growth?

The impact of professional learning on teachers was actually a difficult construct for which to collect evidence even though items were provided on the survey. While statistical differences emerged for these items, no clear trends for particular cohorts of teachers were identified. From the comments provided by teachers it was clear that impact might best be considered on a spectrum with immediate change around teacher thinking, ideas or practice at one end, with longer-term impact at the other end of the spectrum. In general, teachers view professional learning as being an important component of what is required in their role as a professional. However, a minority of teachers considered that the requirement to document and show evidence of their professional learning as a sign of mistrust that undermined their professionalism. There is clearly a need to explore the impact of professional learning further especially as the 60-hour requirement is unlikely to change in the foreseeable future. Given the complexity of measuring or assessing professional learning as supported by the research literature, this will require a targeted and specific project conducted over a longer period.

RQ3: To what degree did the professional teaching standards (APST) align with the professional learning experiences reported?

Teachers were informed about the APST and were able to align their professional learning activities to each of the standards. All standards were targeted with 1 726 teachers addressing all the standards in their learning summaries even though this was not a requirement for the TRB.

Having said this, the alignment of activities to particular standards was not always clear, especially for activities that bordered between professional practice and professional learning. This is where clear annotations by teachers helped clarify how a particular activity had supported the individual in addressing the standard. Even though teachers aligned activities to standards, the majority of teachers spoke positively about providers that issued certificates with the standards identified. The issue here though is that it does not actually provide teachers with the ownership to contextualise the standards to their own teaching.

RQ4: How did teachers record and provide evidence of their professional learning?

The majority of evidence cited on the professional learning summaries was Certificates and Notes. Of all the requirements, identification of appropriate evidence emerged during the focus group interviews as being particularly problematic for teachers. In fact, teachers shared that they were so concerned that they deliberately sought activities that provided Certificates of attendance. The result was a preference for Face-to-face sessions or even Online learning where certificates were distributed. There is clearly a need here for more examples of various activities and the types of evidence that would be considered acceptable in documenting professional learning.

RQ5. What are the key challenges experienced in meeting professional learning requirements?

Teachers identified a number of challenges met in meeting the 60 hours of professional learning. Analyses of the data from the summaries and online surveys identified that TRTs were the most affected cohort followed by teachers Not currently teaching and those on Short-term contracts. In terms of employment location, teachers in Country schools faced significant challenges around professional learning compared to their peers in Metropolitan schools. Many of the challenges for these four cohorts involved distance, time, cost, and the impact of family and work-life balance.

Further insights provided during the focus groups and from comments on the surveys highlighted the difficulties some teachers faced in gaining support from senior management to attend particular professional learning opportunities. The result was they had to attend on weekends or after school while funding the activity personally. Importantly, these comments came from teachers in each of the three sectors indicating that it is not sector-driven but by individual schools based upon budgets and strategic plans established by schools in relation to future directions.

Stepping back from this it is interesting to note that much of the discussion related to Face-to-face professional learning and not to the other modes of learning that were available for teachers to access. The drive for Face-to-face learning activities is evident for all teachers even though there are quite limiting constraints for particular cohorts of teachers, such as TRTs, those Not currently teaching, and teachers in Country schools.

RQ6: What areas of interest and need are identified by teachers in supporting their professional learning into the future?

A variety of needs emerged from the analysis of teachers' responses from the online surveys although no definite trends were identifiable with the exception of TRTs and teachers Not currently teaching. In the majority of cases, the needs identified could be explained given the particular cohort that was affected. TRTs are especially interesting regarding their needs in that they represent a diverse group with early career teachers trying to enter the profession at one end and highly experienced, semi-retired teachers at the other with very different views about their needs around professional learning.

The open responses provided by teachers indicate that teachers are seeking professional learning around specific content areas (e.g., mathematics, humanities, languages, sciences, music) and curriculum frameworks, which aligns to Standard 2. Importantly, approximately half of the teachers interested in content areas are in primary schools so this is not just about secondary teachers pursuing their discipline specialisms. This was an interesting finding given that this type of specialist professional learning is not likely to be provided as school-based professional learning thereby requiring teachers to seek out these opportunities in the wider educational community (e.g., through associations, universities, or online).

RQ7. What was the response to the TRB's communications strategy in disseminating information to teachers in SA around new professional learning requirements?

The communications strategy of the TRB received extremely positive responses from teachers in relation to the information sessions, website, Registration Buzz, emails and telephone communication. Teachers were complimentary about the clarity they received regarding the expectations around professional learning from staff from the TRB. The Teachers Portal was considered easy to use and very useful by the teachers who documented their professional learning electronically. While some teachers experienced minor glitches in gaining access, the majority spoke positively about it being "*fit for purpose*". A few teachers perceived the documentation as duplicating what was already being undertaken in their schools, hence critical of the need to replicate the process.

The evaluation of 2 254 teachers (i.e., total number selected) progressed without major difficulties with a clear process established for notifying and communicating with teachers comprising the sample. The audit of summaries did not provide feedback to individual teachers so there is a possibility that these teachers consider their activities met the learning requirements for TRB. However, the findings in this report provide many examples from teachers that will be useful in sharing via the website and *Registration Buzz*.

Recommendations for Consideration

The following recommendations are based upon the key findings presented in this report. They are provided for consideration by the TRB in planning future directions around the professional learning requirements of registered teachers. They are collated into three broad categories:

- Building Teacher Ownership of Professional Learning,
- Systems Alignment through Cooperation, and
- TRB Processes and Communications.

Presented in this manner they represent a scaling of focus from overarching recommendations that might be viewed as the responsibility of all educational stakeholders and authorities through to those recommendations that are specifically relevant to the TRB.

Building Teacher Ownership of Professional Learning

1. The TRB and other educational stakeholders promote greater clarity around the differences between professional learning as part of professional growth of a teacher and professional practice that embraces those roles and responsibilities that constitute the normal activities of a teacher regardless of the employment status (i.e., contract or permanent).
   An overarching framework for supporting teachers in making these distinctions might be Standard 6 *Engage in Professional Learning* along with the associated foci 6.1, 6.2, 6.3 and 6.4. The evaluation demonstrates that the majority of teachers aligned their learning to this standard (not surprisingly). However, the foci encourage teachers to consider their learning at a deeper level in relation to (i) planning around their own needs; (ii) being able to reflect on how their learning enhances their

practice; (ii) engaging in collaborative networks; and, (iv) ways in which their learning enhances student learning.

2. The TRB and other educational stakeholders encourage teachers to consider the impact of their professional learning by reflecting on the:

    - Insights or ideas gained as an immediate outcome of their learning;
    - Insights or ideas that emerge after a substantive period of time from engaging in professional learning so are longer-term in impact; and
    - Opportunities for teachers to apply their insights or learnings with their peers either in the same school, local community of teachers, or at an association level (i.e., within Communities of practice).

Note: Impact is an important consideration but also very complex given there are no easy measures to apply in a valid and reliable way. Hence, further investigation would require a specific project targeted at this particular goal.

Systems Alignment through Cooperation

3. The TRB will clarify with the Department of Education and Childhood Development, Catholic Education South Australia, Association of Independent Schools of South Australia, and early childhood services the professional learning expectations of employers to better align the expectations of teacher registration renewal by the TRB.
   The TRB clarify with educational stakeholders that the focus of professional learning is around individual teacher registration. As such, teachers need to be supported in seeking specific professional learning that is relevant to their own unique needs through workshops, online resources, individual research, or personal study. This professional learning is necessary in order for teachers to address the APST.

4. The TRB collaborate with the Department of Education and Child Development, Catholic Education South Australia, Association of Independent Schools of South Australia, and early childhood services to ensure greater equity for those teachers finding difficulties in meeting the professional learning requirements by accessing a range of different opportunities. This might include:

    - Exploring ways for teachers not permanently attached to a school or a service, such as TRTs or teachers Not currently teaching, to gain greater access to work-based professional learning opportunities where they can participate with colleagues.
    - Providing teachers in regional areas similar opportunities to their peers in metropolitan areas, such as a one or two-day Regional Conference that might be held in areas including Eyre Peninsula, the Upper North, the Riverland, and the South East of South Australia.

TRB Processes and Communications

5. The TRB consider Standard 6 and the four foci as an overarching framework to encourage teachers to think more deeply about their own professional learning needs to enhance personal ownership while ensuring that it does not become a 'tick box' exercise in order to merely complete mandatory hours.

6. The TRB staff

    - Continue to encourage and support teachers to record their professional learning through the Teachers online portal, which is a secure environment allowing teachers to also update their own personal details.

    - Revise the labels or modes of learning forming the 'flower' on the current information sheets for professional learning as there is a high degree of overlap between these labels that do not help to teachers identify the variety of professional learning that is possible.

7. The TRB update their information about professional learning using examples of actual de-identified data obtained from the evaluation to share with teachers through the website and Registration Buzz. Further specific information is required to support teachers in completing their professional learning summaries so that they meet TRB requirements. This includes:

    - Provision of authentic examples of activities that might be undertaken by teachers online through their own personal research or study along with appropriate annotations as to how these activities might align to the APST.

    - Greater detailed examples of activities that are not demonstrative of professional learning so should not be included in teachers' professional learning summaries.

    - Further examples of the types of evidence that might be used for specific learning activities in professional learning summaries.

8. The TRB consider future reviews of professional learning summaries to include a stratified random sample of 10% of teachers currently renewing their registration. This might align to the actual renewal process so that only teachers who meet all the requirements (including appropriate professional learning) gain their certificate of registration.

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Glossary

Term/Acronym	Definition
AITSL	Australian Institute for Teaching and School Leadership
APSP	*Australian Professional Standards for Principals*
APST	*Australian Professional Standards for Teachers*
CPD	Continuing Professional Development
EYLF	Early Years Learning Framework
IB	International Baccalaureate
PD	Professional Development
PL	Professional Learning
Professional Learning Summary	A record summarising the professional learning activities undertaken by a teacher during their term of registration. Further information about summary records are available at: http://www.trb.sa.edu.au/PL-evidence-requirements
Registration Buzz	A fortnightly e-newsletter published by the TRB
SACE	South Australian Certificate of Education
Teachers Portal	A secure online website that allows teachers to record their professional learning
TRB	Teachers Registration Board of South Australia
TRT	Temporary Relief Teacher

Appendix 1

Professional Learning Summary Record

All teachers wishing to renew (full) Registration or Provisional Registration for a further term are required to undertake 60 hours of professional learning referenced to the *National Professional Standards for Teachers* within the current 3 year term of their registration.

National Professional Standards for Teachers in brief:

Domains of teaching	Standards	Focus areas and Descriptors
Professional Knowledge	1. Know students and how they learn 2. Know the content and how to teach it	Refer to the Standard at each career stage – www.aitsl.edu.au or via links on TRB website at www.trb.sa.edu.au
Professional Practice	3. Plan for and implement effective teaching and learning 4. Create and maintain supportive and safe learning environments 5. Assess, provide feedback and report on student learning	
Professional Engagement	6. Engage in professional learning 7. Engage professionally with colleagues, parents/ carers and the community	

National Professional Standards for Teachers in detail available at www.aitsl.edu.au or via links on the Teachers Registration Board website at www.trb.sa.edu.au

New Requirements for Renewal of Registration 2015 – Professional Learning Summary Record

Name: _____ Registration Number: _____ Date of Birth: _____

Record of 60 hours of professional learning undertaken within my current 3 year term of registration

Year	Dates on/over which the professional learning opportunity took place	Description or topic of professional learning opportunity	Hours committed to the professional learning opportunity	Description of evidence held to verify completion of professional learning requirement	The professional standards against which you have referenced your learning and a brief annotation of the connection between the learning and the Standards
EXAMPLE 2013	***Feb 2,9,15***	***Australian Curriculum (focus years 3-6) content, general capabilities and cross curriculum perspectives***	***1 hour each sitting = 3 hours***	***Information accessed online via Australian Curriculum website Summary notes/reflections***	***Standards 1,2 & 3 - knowing students and how they learn, the content of the teaching areas (3-6) with particular focus on Aboriginal and Torres Strait Islander learners & literacy and numeracy***

I declare that this is a true and correct summary of evidence I have retained to verify the declaration I made in my Application for Renewal of my (full) Registration or Provisional Registration for <u>one</u> further term. I hold the evidence detailed above to substantiate I have met the requirement of 60 hours of

New Requirements for Renewal of Registration 2015 – Professional Learning Summary Record

professional learning referenced to the (Australian) National Professional Standards for Teachers within my current term of registration.

Signed: ---------- ***Dated:*** ----------

Appendix 2

Online Survey

Professional Learning Evaluation Survey

[Introduction and instruction words]

* **Registration Number**

* **Name:**

* **Date of Birth:**

	DD	MM	YYYY
Date of Birth		/ /	

Professional Learning Evaluation Survey

Employment Setting

* **During the last 3 years I have been teaching most of the time in the following setting:**
(Please select one of the following)

- ◯ Long Day Care
- ◯ Pre-school
- ◯ Primary school
- ◯ Middle school
- ◯ Secondary school
- ◯ Not currently teaching (i.e. leave, secondment, retired, etc)

Professional Learning Evaluation Survey

Other employment details

* **Other employment details:**

- ○ Teaching in Universities/TAFE/tertiary education
- ○ On secondment
- ○ On extended approved leave (i.e. parenting, maternity, sick)
- ○ On career break
- ○ Retired
- ○ Other (please specify)

* **I have been in this role for approximately:**

- ○ Less than 1 year
- ○ 1-3 years
- ○ 3-5 years
- ○ More than 5 years

Professional Learning Evaluation Survey

Employment Location

* **During the last 3 years I have been employed most of the time in:**
(Please select one of the following)

- ○ Metropolitan South Australia
- ○ Country South Australia
- ○ Remote South Australia
- ○ Interstate
- ○ Overseas

Professional Learning Evaluation Survey

Employment Sector in South Australia

* **During the last 3 years I have been employed most of the time by:**
(Please select one of the following)

- ○ Department for Education and Child Development (DECD)
- ○ Catholic Education South Australia (CESA)
- ○ Association of Independent Schools of South Australia (AISSA)
- ○ Other (please specify)

[ ]

Professional Learning Evaluation Survey

Interstate details

*** Which state/territory were you employed in?**

- ○ Australian Capital Territory
- ○ New South Wales
- ○ Northern Territory
- ○ Queensland
- ○ Tasmania
- ○ Victoria
- ○ Western Australia

Professional Learning Evaluation Survey

Overseas details

*** Which overseas region/country were you employed in?**

- ○ Africa
- ○ Americas
- ○ Asia and Pacific
- ○ Middle East
- ○ Europe and Eurasia
- ○ United Kingdom

Professional Learning Evaluation Survey

Teaching employment status

* **During the last 3 years my employment status has been:**
(Please select the most appropriate)

- ○ Permanent full time (over 90% load)
- ○ Permanent part time (51-90%)
- ○ Permanent part time (less than 50%)
- ○ Full time contract
- ○ Part time contract
- ○ Short term contact
- ○ TRT

Professional Learning Evaluation Survey

Total years of teaching

* **In my career so far, I have taught for:**
(Please select from below)

- ○ 0-3 years
- ○ 3-6 years
- ○ 6-9 years
- ○ 9-15 years
- ○ Over 15 years

Professional Learning Evaluation Survey

*** Identify the mode(s) of professional learning undertaken over the last 3 years:**

	Yes	No
1. Face-to-face learning opportunities (e.g. workshops, conferences)	○	○
2. Study and/or training (e.g. mandated training, postgraduate study)	○	○
3. Research (e.g. professional reading/listening, action research)	○	○
4. Online learning (e.g. podcasts, webinars, intranet-based)	○	○
5. Communities of practice (e.g. teacher employers, professional associations)	○	○

Professional Learning Evaluation Survey

*** For each specified mode of professional learning activity, please estimate the impact of the activity.**

	Little impact	Some impact	Moderate impact	High impact
1. Face-to-face learning opportunities (e.g. workshops, conferences)	○	○	○	○
2. Study and/or training (e.g. mandated training, postgraduate study)	○	○	○	○
3. Research (e.g. professional reading/listening, action research)	○	○	○	○
4. Online learning (e.g. podcasts, webinars, intranet-based)	○	○	○	○
5. Communities of practice (e.g. teacher employers, professional associations)	○	○	○	○

Professional Learning Evaluation Survey

* **Please rank the following in terms of your preferred mode of professional learning:**
(e.g.1 = most preferred, 5 = least preferred)

- [ ] Face-to-face learning opportunities (e.g. workshops, conferences)
- [ ] Study and/or training (e.g. mandated training, postgraduate study)
- [ ] Research (e.g. professional reading/listening, action research)
- [ ] Online learning (e.g. podcasts, webinars, intranet-based)
- [ ] Communities of practice (e.g. teacher employers, professional associations)

Professional Learning Evaluation Survey

* **For the professional learning activities undertaken, I personally paid for….**
(Please select one choice)

- ○ None
- ○ Some
- ○ All

Professional Learning Evaluation Survey

* **For the professional learning activities completed, I received:**
(Please mark one in each row)

	Yes	No
Scheduled time for activities that took place during regular working hours at this centre/school.	○	○
A salary supplement for activities outside working hours.	○	○
Non-monetary support for activities outside working hours (reduced teaching, days off, study leave etc.)	○	○

Professional Learning Evaluation Survey

* **Considering your professional learning over the last 3 years, to what extent did they include the following:**
(Please select one choice in each row)

	Not in any activities	Yes, in some activities	Yes, in most activities	Yes, in all activities
A group of colleagues from my centre/school or subject group	○	○	○	○
Opportunities for active methods of learning (i.e., not just listening)	○	○	○	○
Collaborative learning activities or research with other teachers/colleagues	○	○	○	○
An extended time-period with multiple sessions spread out over several weeks or months	○	○	○	○

Professional Learning Evaluation Survey

* **My current professional learning needs include:**
(Please select one choice in each row with Not applicable an option if not relevant to your centre/school setting)

	Not Applicable	No need at present	Low level of need	Moderate level of need	High level of need
Knowledge and understanding of relevant curriculum frameworks (e.g. EYLF, Australian Curriculum)	○	○	○	○	○
Knowledge and understanding of particular subject area(s) (please specify in the comments box below)	○	○	○	○	○
Pedagogical competencies in teaching particular subject areas (please specify in the comments box below)	○	○	○	○	○
Assessment practices and evaluation of individual learning	○	○	○	○	○
Information communication technology skills for teaching	○	○	○	○	○
Behaviour strategies to manage the learning environment	○	○	○	○	○
Differentiating the curriculum for individuals with special needs	○	○	○	○	○
Teaching individuals from diverse multicultural and/or multilingual backgrounds	○	○	○	○	○
Teaching Aboriginal and Torres Strait Islanders	○	○	○	○	○
Incorporating play in the learning environment	○	○	○	○	○
Teaching cross-curricula skills – i.e., problem-solving, creativity	○	○	○	○	○
Career guidance and/or counselling in centre/school setting	○	○	○	○	○
Leadership and management skills	○	○	○	○	○
Well-being of learners and teachers in an educational setting	○	○	○	○	○

Other professional learning needs not identified above? (Please specify) Any additional comments?

Professional Learning Evaluation Survey

* **How strongly do you agree or disagree that the following were challenges to your participation in professional learning?**
(Please select one choice in each row)

	Strongly disagree	Disagree	Agree	Strongly agree
I do not have the pre-requisites (e.g. qualifications, experience, seniority) for my preferred professional learning.	○	○	○	○
Professional learning is too expensive/unaffordable.	○	○	○	○
There is a lack of employer support	○	○	○	○
Professional learning conflicts with my work schedule.	○	○	○	○
I do not have time because of family responsibilities.	○	○	○	○
There is no relevant professional learning offered.	○	○	○	○
There are no incentives for participating in such activities.	○	○	○	○

What other specific challenges did you face in meeting the 60 hours of professional learning requirements for registration?
(Please identify below)

Professional Learning Evaluation Survey

We are conducting Focus Group Interviews in February/March 2016 in metropolitan and rural locations to discuss aspects of professional learning in more detail. If you are interested in participating in one of these please provide your email and phone number below.

We thank you for completing this survey!

Kind regards,
Associate Professor Debra Panizzon
(Consultant - Professional Standards)

Email Address

Phone Number

Appendix 3

Focus Group Interview Protocol

Focus Group Interviews
Protocol

Welcome and introduction to team

Purpose of these interviews (fill in details around professional learning gained from the summaries and online surveys)

Explanation - that we will be taping but all information reported will be de-identified to ensure anonymity of individuals present in the group.

Thematic Question 1: **What is your overall experience with meeting the Professional Learning requirements?**

1. What was new for you in this latest round of teacher renewal? How did you deal with this?

2. Where or who did you go to for information about what was required in relation to PL? How helpful were these sources? How accurate were these sources given what you had to do as part of the audit for the evaluation?

3. How did you go about aligning your activity to the teaching standards? How aware of the standards were you prior to having to complete this part of the requirement?

4. How did you go about documenting your evidence of PL? What did you use? In hindsight, what other types of evidence might be used by teachers?

5. For those of you teaching in schools/centres - what level of support was provided by your school or centre in meeting the PL requirements for registration renewal? How much PL was provided 'in house', accessed 'outside' in your own time?

6. For those of you not currently teaching in schools/centres – how did you access your PL and meet the requirements?

7. What were the challenges you met in completing 60 hours of PL in the last 3 years?

Thematic Question 2: What Professional Learning has had the greatest impact on your teaching?

8. If we focus on the PL in greater detail - what kinds of PL have you been involved in? Why did you select what you did? (What are the factors influencing teachers' choices of PL?)

9. Did you pursue online learning? If so, why? If not, why? What might be done to support teachers in this area more?

10. How has the PL undertaken impacted you as a teacher? Your teaching? Do you have examples?

11. Has your PL impacted your colleagues? Can you provide some examples to share with other teachers?

Thematic Question 3: Given your experience in this process, what advice would you give to future cohorts of teachers regarding their Professional Learning journey?

Open discussion – follow up on the ideas provided for teachers. Hopefully, the portal might come up by the teachers.

12. Would you for example suggest they use the portal? For those who used the portal, how did you find this mode of documenting your PL? For those who chose not to use the portal, what are the reasons for this?

Thematic Question 4: What advice would you give to the TRB and other associations to provide future support to teachers in meeting their Professional Learning requirements?

13. What could the TRB provide that might support teachers in meeting this 60 hours of PL requirement?

14. How might the process for recording/tracking PL be improved?

15. What might employers or other stakeholders (e.g. professional associations etc) provide that might support teachers in meeting this PL requirement?

Do you have any questions you would like to ask of us?
Process from now in compiling the data and communicating it to teachers.
Thank you very much for participation in this group!

Appendix 4

Details of statistics in report

1. AGE by employment location (Employloc):

Does mean rank age differ significantly by employment location?

Variable	N	W	P
Age	2092	0.9420	0.0000

Step 1: Are the variances homogenous? .

Homogeneity of Variances	F	P
Levene's Test	0.43	0.7834
O'Brien's Test	0.63	0.6385
Brown and Forsythe Test	0.32	0.8640

Step 2: Do the AOV:

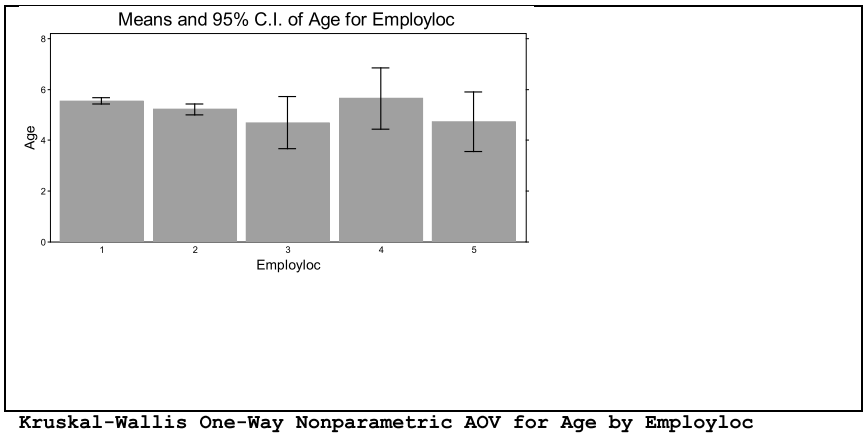
One-Way AOV for Age by Employloc

Source	DF	SS	MS	F	P
Employloc	4	59.8	14.9473	2.69	0.0297
Error	1825	10143.2	5.5579		
Total	1829	10203.0			

Are the mean ranked ages significantly different among employment location?

Step 3. Which means differ?

Employloc	N	Mean	SE
1	1331	5.5477	0.0646
2	441	5.2177	0.1123
3	23	4.6957	0.4916
4	17	5.6471	0.5718
5	18	4.7222	0.5557



Kruskal-Wallis One-Way Nonparametric AOV for Age by Employloc

Employloc	Mean Rank	Sample Size
1	937.3	1331
2	863.0	441
3	748.1	23
4	959.7	17
5	761.7	18
Total	915.5	1830

Kruskal-Wallis Statistic, corrected for ties	**10.91**
P-Value, Using Beta Approximation	0.0264
P-Value, Using Chi-Squared Approximation	0.0276

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	4	2952819	738205	2.70	0.0294

Within	1825	4.998E+08	273848
Total	1829	5.027E+08	

Total number of values that were tied 1830
Max. diff. allowed between ties 0.00001

Cases Included 1830 Missing Cases 262

Dunn's All-Pairwise Comparisons Test of Age by Employloc

Employloc	Mean Rank	1	2	3	4
1	937.31				
2	862.99	74.32			
3	748.11	189.20	114.88		
4	959.68	22.37	96.69	211.57	
5	761.67	175.64	101.32	13.56	198.01

Alpha 0.05 Standard Error for Comparison 28.806 TO 177.31
Critical Z Value 2.807 Critical Value for Comparison 80.859 TO 497.7

NO significant differences among medians

2. Is mean rank age associated with employment location?

Chi-Square Test for Heterogeneity or Independence for 1 = Age x Employloc

		Employloc					
Age		1	2	3	4	5	Total
1	Observed	14	5	2	0	1	22
	Expected	16.00	5.30	0.28	0.20	0.22	
	Cell χ^2	0.25	0.02	10.74	0.20	2.84	
2	Observed	159	74	3	1	3	240
	Expected	174.56	57.84	3.02	2.23	2.36	
	Cell χ^2	1.39	4.52	0.00	0.68	0.17	
3	Observed	163	60	4	4	5	236
	Expected	171.65	56.87	2.97	2.19	2.32	
	Cell χ^2	0.44	0.17	0.36	1.49	3.09	
4	Observed	144	47	3	0	1	195
	Expected	141.83	46.99	2.45	1.81	1.92	
	Cell χ^2	0.03	0.00	0.12	1.81	0.44	
5	Observed	171	51	2	3	0	227
	Expected	165.10	54.70	2.85	2.11	2.23	
	Cell χ^2	0.21	0.25	0.26	0.38	2.23	
6	Observed	142	48	3	3	2	198
	Expected	144.01	47.71	2.49	1.84	1.95	
	Cell χ^2	0.03	0.00	0.11	0.73	0.00	
7	Observed	183	56	3	2	2	246
	Expected	178.92	59.28	3.09	2.29	2.42	
	Cell χ^2	0.09	0.18	0.00	0.04	0.07	
8	Observed	219	63	1	1	3	287
	Expected	208.74	69.16	3.61	2.67	2.82	
	Cell χ^2	0.50	0.55	1.88	1.04	0.01	
9	Observed	115	30	1	3	1	150
	Expected	109.10	36.15	1.89	1.39	1.48	
	Cell χ^2	0.32	1.05	0.42	1.85	0.15	
10	Observed	19	6	1	0	0	26
	Expected	18.91	6.27	0.33	0.24	0.26	
	Cell χ^2	0.00	0.01	1.39	0.24	0.26	
11	Observed	2	1	0	0	0	3
	Expected	2.18	0.72	0.04	0.03	0.03	
	Cell χ^2	0.02	0.11	0.04	0.03	0.03	
Total		1331	441	23	17	18	1830

Overall Chi-Square	43.23
P-value	0.3350
Degrees of Freedom	40

CAUTION: 10 cells have expected values less than 1.0

3. Years of teaching (Yearstchg) by employment location (Employloc):

In my career	0-3 years	1
have taught	3-6 years	2
for	6-9 years	3
	9-15 years	4
	over 15 years	5

Does mean rank years of teaching differ significantly by employment location?

Kruskal-Wallis One-Way Nonparametric AOV for Yrsteachg by Employloc

Employloc	Mean Rank	Sample Size
1	938.8	1331
2	873.0	441
3	599.9	23
4	863.4	17
5	684.1	18
Total	915.5	1830

Kruskal-Wallis Statistic, corrected for ties	**21.93**
P-Value, Using Beta Approximation	0.0002
P-Value, Using Chi-Squared Approximation	0.0002

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	4	4822787	1205697	4.91	0.0006
Within	1825	4.484E+08	245684		
Total	1829	4.532E+08			

Total number of values that were tied 1830
Max. diff. allowed between ties 0.00001

Cases Included 1830 Missing Cases 262

Dunn's All-Pairwise Comparisons Test of Yrsteachg by Employloc

Employloc	Mean Rank	1	2	3	4
1	938.84				
2	872.98	65.86			
3	599.91	338.92*	273.06		
4	863.38	75.46	9.59	263.47	
5	684.14	254.70	188.84	84.23	179.24

Alpha	0.05	Standard Error for Comparison	27.350 TO 168.35
Critical Z Value	2.807	Critical Value for Comparison	76.773 TO 472.56

4. Is mean rank years of teaching associated with employment location?

Chi-Square Test for Heterogeneity or Independence for 1 = Yrsteachg X Employloc

		Employloc					
Yrsteachg		**1**	**2**	**3**	**4**	**5**	**Total**
1	Observed	136	47	9	2	5	199
	Expected	144.74	47.96	2.50	1.85	1.96	
	Cell χ^2	0.53	0.02	16.89	0.01	4.73	
2	Observed	159	69	3	2	3	236
	Expected	171.65	56.87	2.97	2.19	2.32	
	Cell χ^2	0.93	2.59	0.00	0.02	0.20	
3	Observed	152	58	2	1	3	216
	Expected	157.10	52.05	2.71	2.01	2.12	
	Cell χ^2	0.17	0.68	0.19	0.50	0.36	
4	Observed	233	81	3	6	1	324
	Expected	235.65	78.08	4.07	3.01	3.19	
	Cell χ^2	0.03	0.11	0.28	2.97	1.50	
5	Observed	651	186	6	6	6	855
	Expected	621.86	206.04	10.75	7.94	8.41	
	Cell χ^2	1.37	1.95	2.10	0.48	0.69	
Total		1331	441	23	17	18	1830

Overall Chi-Square	39.28
P-value	0.0010
Degrees of Freedom	16

CAUTION: 12 cells have expected values less than 5.0

5. Years of teaching (Yearstchg) by employment setting (Emplysettg):

In my career	0-3 years	1
have taught	3-6 years	2
for	6-9 years	3
	9-15 years	4
	over 15 years	5

Chi-Square Test for Heterogeneity or Independence for 1 = Yrsteachg x Emplsetti

		Emplsetti				
Yrsteachg		1	2	3	4	5
1	Observed	5	10	94	23	67
	Expected	2.10	12.17	106.85	17.14	64.15
	Cell χ^2	4.00	0.39	1.54	2.00	0.13
2	Observed	4	23	117	31	61
	Expected	2.44	14.11	123.92	19.88	74.40
	Cell χ^2	1.00	5.60	0.39	6.21	2.41
3	Observed	2	9	140	16	49
	Expected	2.31	13.39	117.58	18.87	70.60
	Cell χ^2	0.04	1.44	4.28	0.44	6.61
4	Observed	1	17	188	31	87
	Expected	3.38	19.56	171.73	27.56	103.11
	Cell χ^2	1.67	0.33	1.54	0.43	2.52
5	Observed	7	51	427	54	316
	Expected	8.77	50.78	445.92	71.55	267.74
	Cell χ^2	0.36	0.00	0.80	4.30	8.70
Total		19	110	966	155	580

		Emplsetti	
Yrsteachg		6	Total
1	Observed	20	219
	Expected	16.59	
	Cell χ^2	0.70	
2	Observed	18	254
	Expected	19.24	
	Cell χ^2	0.08	
3	Observed	25	241
	Expected	18.26	
	Cell χ^2	2.49	
4	Observed	28	352
	Expected	26.67	
	Cell χ^2	0.07	
5	Observed	59	914
	Expected	69.24	
	Cell χ^2	1.52	
Total		150	1980

Overall Chi-Square	61.98
P-value	0.0000
Degrees of Freedom	20

6. Years of teaching (Yearstchg) by employment status (Emplystatus)

Chi-Square Test for Heterogeneity or Independence for 1 = Yrsteachg x Emplystat

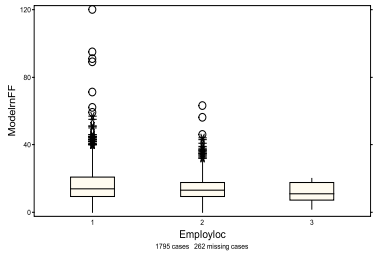
		Emplystat					
Yrsteachg		**1**	**2**	**3**	**4**	**5**	**6**
1	Observed	39	9	4	83	27	10
	Expected	97.05	33.29	6.42	27.42	14.58	4.03
	Cell χ^2	34.72	17.73	0.91	112.67	10.58	8.87
2	Observed	89	18	7	66	26	10
	Expected	115.10	39.48	7.61	32.52	17.29	4.77
	Cell χ^2	5.92	11.69	0.05	34.48	4.39	5.72
3	Observed	113	20	3	39	18	4
	Expected	105.34	36.14	6.97	29.76	15.83	4.37
	Cell χ^2	0.56	7.21	2.26	2.87	0.30	0.03
4	Observed	145	68	20	29	33	3
	Expected	158.01	54.21	10.45	44.64	23.74	6.55
	Cell χ^2	1.07	3.51	8.72	5.48	3.61	1.93
5	Observed	506	191	25	35	30	10
	Expected	416.49	142.88	27.55	117.66	62.57	17.28
	Cell χ^2	19.24	16.21	0.24	58.08	16.95	3.06
Total		892	306	59	252	134	37

		Emplystat	
Yrsteachg		**7**	**Total**
1	Observed	27	199
	Expected	16.21	
	Cell χ^2	7.18	
2	Observed	20	236
	Expected	19.23	
	Cell χ^2	0.03	
3	Observed	19	216
	Expected	17.60	
	Cell χ^2	0.11	
4	Observed	26	324
	Expected	26.39	
	Cell χ^2	0.01	
5	Observed	57	854
	Expected	69.57	
	Cell χ^2	2.27	
Total		149	1829

Overall Chi-Square	408.65
P-value	0.0000
Degrees of Freedom	24

7. Modes of learning (from learning summaries)

Kruskal-Wallis One-Way Nonparametric AOV for ModelrnFF by Employloc



Employloc	Mean Rank	Sample Size
1	918.2	1331
2	846.5	441
3	717.3	23
Total	898.0	1795

Kruskal-Wallis Statistic, corrected for ties	9.19
P-Value, Using Beta Approximation	0.0097
P-Value, Using Chi-Squared Approximation	0.0101

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	2	2461956	1230978	4.61	0.0101
Within	1792	4.787E+08	267151		
Total	1794	4.812E+08			

Total number of values that were tied 1783
Max. diff. allowed between ties 0.00001

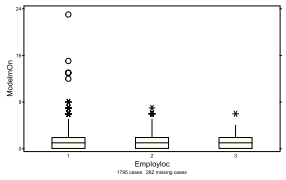
Cases Included 1795 Missing Cases 262

Dunn's All-Pairwise Comparisons Test of ModelrnFF by Employloc

Employloc	Mean Rank	1	2
1	918.18		
2	846.52	71.66*	
3	717.30	200.88	129.21

Alpha	0.05	Standard Error for Comparison	28.456 TO 110.77
Critical Z Value	2.394	Critical Value for Comparison	68.123 TO 265.18

Kruskal-Wallis One-Way Nonparametric AOV for ModelrnOn by Employloc



Employloc	Mean Rank	Sample Size
1	874.3	1331
2	972.9	441
3	833.5	23
Total	898.0	1795

Kruskal-Wallis Statistic, corrected for ties 14.19
P-Value, Using Beta Approximation 0.0008
P-Value, Using Chi-Squared Approximation 0.0008

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	2	3318542	1659271	6.66	0.0013
Within	1792	4.464E+08	249088		
Total	1794	4.497E+08			

Total number of values that were tied 1792
Max. diff. allowed between ties 0.00001

Cases Included 1795 Missing Cases 262

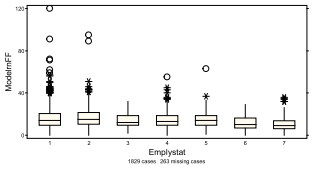
Dunn's All-Pairwise Comparisons Test of ModelrnOn by Employloc

Employloc	Mean Rank	1	2
1	874.29		
2	972.91	98.62*	
3	833.50	40.79	139.41

Alpha 0.05 Standard Error for Comparison 27.508 TO 107.08
Critical Z Value 2.394 Critical Value for Comparison 65.855 TO 256.35

8. Modes of learning and employment status

Do medians of modes of learning differ among employment status?



Kruskal-Wallis One-Way Nonparametric AOV for ModelrnFF by Emplystat

Emplystat	Mean Rank	Sample Size
1	951.4	892
2	998.9	306
3	847.4	59
4	907.2	252
5	902.6	134
6	717.6	37
7	625.0	149
Total	915.0	1829

Kruskal-Wallis Statistic, corrected for ties 63.34
P-Value, Using Beta Approximation 0.0000
P-Value, Using Chi-Squared Approximation 0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	6	1.761E+07	2935017	10.88	0.0000
Within	1822	4.915E+08	269732		
Total	1828	5.091E+08			

Total number of values that were tied 1816
Max. diff. allowed between ties 0.00001

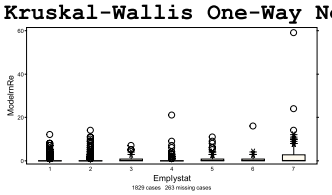
Cases Included 1829 Missing Cases 263

Dunn's All-Pairwise Comparisons Test of ModelrnFF by Emplystat

Emplystat	Mean Rank	1	2	3	4	5	6
1	951.35						
2	998.95	47.60					
3	847.39	103.96	151.56				
4	907.25	44.10	91.70	59.86			
5	902.59	48.77	96.36	55.20	4.66		
6	717.57	233.78	281.38*	129.82	189.68	185.02	
7	625.04	326.31*	373.91*	222.35	282.21*	277.54*	92.52

Alpha 0.05 Standard Error for Comparison 34.961 TO 110.66
Critical Z Value 3.038 Critical Value for Comparison 106.21 TO 336.21

Kruskal-Wallis One-Way Nonparametric AOV for ModelrnRe by Emplystat



Emplystat	Mean Rank	Sample Size
1	869.5	892
2	929.0	306
3	982.7	59
4	844.3	252
5	949.7	134
6	1120.5	37
7	1169.2	149
Total	915.0	1829

Kruskal-Wallis Statistic, corrected for ties	194.62
P-Value, Using Beta Approximation	0.0000
P-Value, Using Chi-Squared Approximation	0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	6	1.479E+07	2465043	17.87	0.0000
Within	1822	2.513E+08	137952		
Total	1828	2.661E+08			

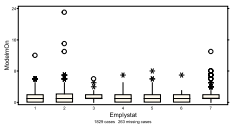
Total number of values that were tied 1825
Max. diff. allowed between ties 0.00001

Cases Included 1829 Missing Cases 263

Dunn's All-Pairwise Comparisons Test of ModelrnRe by Emplystat

Emplystat	Mean Rank	1	2	3	4	5	6
1	869.49						
2	929.02	59.53					
3	982.67	113.18	53.65				
4	844.29	25.20	84.73	138.38			
5	949.67	80.18	20.65	33.00	105.37		
6	1120.47	250.98*	191.45	137.80	276.18*	170.81	
7	1169.22	299.73*	240.20*	186.55*	324.93*	219.55*	48.75

Alpha	0.05	Standard Error for Comparison	25.279 TO 80.016
Critical Z Value	3.038	Critical Value for Comparison	76.798 TO 243.09



Kruskal-Wallis One-Way Nonparametric AOV for ModelrnOn by Emplystat

Emplystat	Mean Rank	Sample Size
1	862.8	892
2	1014.5	306
3	997.2	59
4	893.2	252
5	959.1	134
6	857.4	37
7	1002.0	149
Total	915.0	1829

Kruskal-Wallis Statistic, corrected for ties 30.84
P-Value, Using Beta Approximation 0.0000
P-Value, Using Chi-Squared Approximation 0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	6	7484894	1247482	4.86	0.0001
Within	1822	4.682E+08	256945		
Total	1828	4.756E+08			

Total number of values that were tied 1826
Max. diff. allowed between ties 0.00001

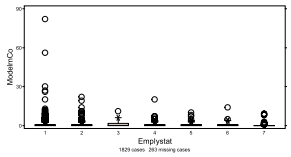
Cases Included 1829 Missing Cases 263

Dunn's All-Pairwise Comparisons Test of ModelrnOn by Emplystat

Emplystat	Mean Rank	1	2	3	4	5	6
1	862.83						
2	1014.46	151.63*					
3	997.20	134.37	17.26				
4	893.19	30.36	121.27	104.01			
5	959.06	96.23	55.40	38.14	65.87		
6	857.43	5.40	157.03	139.77	35.76	101.63	
7	1002.04	139.21*	12.42	4.84	108.85	42.98	144.61

Alpha 0.05 Standard Error for Comparison 33.794 TO 106.97
Critical Z Value 3.038 Critical Value for Comparison 102.67 TO 324.98

Kruskal-Wallis One-Way Nonparametric AOV for ModelrnCo by Emplystat



Emplystat	Mean Rank	Sample Size
1	926.0	892
2	931.4	306
3	1059.6	59
4	904.3	252
5	864.0	134
6	983.4	37
7	804.8	149
Total	915.0	1829

Kruskal-Wallis Statistic, corrected for ties 30.75
P-Value, Using Beta Approximation 0.0000
P-Value, Using Chi-Squared Approximation 0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	6	3782992	630499	3.43	0.0023
Within	1822	3.349E+08	183784		
Total	1828	3.386E+08			

Total number of values that were tied 1821
Max. diff. allowed between ties 0.00001

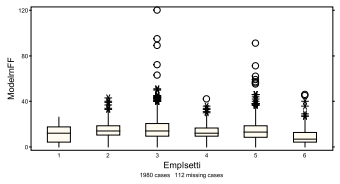
Cases Included 1829 Missing Cases 263

Dunn's All-Pairwise Comparisons Test of ModelrnCo by Emplystat

Emplystat	Mean Rank	1	2	3	4	5	6
1	926.05						
2	931.45	5.40					
3	1059.56	133.51	128.11				
4	904.29	21.76	27.16	155.27			
5	864.04	62.00	67.41	195.52	40.25		
6	983.36	57.32	51.92	76.19	79.08	119.32	
7	804.83	121.22*	126.62	254.73*	99.46	59.22	178.54

Alpha 0.05 Standard Error for Comparison 28.514 TO 90.258
Critical Z Value 3.038 Critical Value for Comparison 86.629 TO 274.21

9. Modes of learning and employment setting



Kruskal-Wallis One-Way Nonparametric AOV for ModelrnFF by Emplsetti

Emplsetti	Mean Rank	Sample Size
1	778.9	19
2	1055.9	110
3	1070.7	966
4	922.0	155
5	967.9	580
6	611.0	150
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties	92.59
P-Value, Using Beta Approximation	0.0000
P-Value, Using Chi-Squared Approximation	0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	5	3.017E+07	6034675	19.35	0.0000
Within	1974	6.157E+08	311909		
Total	1979	6.459E+08			

Total number of values that were tied 1967
Max. diff. allowed between ties 0.00001

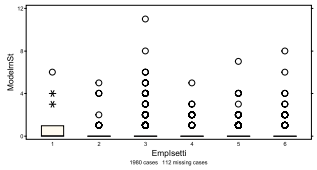
Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of ModelrnFF by Emplsetti

Emplsetti	Mean Rank	1	2	3	4	5
1	778.95					
2	1055.87	276.92				
3	1070.74	291.79	14.87			
4	921.96	143.01	133.91	148.78*		
5	967.87	188.92	88.00	102.87*	45.91	
6	610.95	167.99	444.91*	459.79*	311.00*	356.92*

Alpha	0.05	Standard Error for Comparison	30.009 TO 141.93
Critical Z Value	2.935	Critical Value for Comparison	88.083 TO 416.59

Kruskal-Wallis One-Way Nonparametric AOV for ModelrnSt by Emplsetti



Emplsetti	Mean Rank	Sample Size
1	1202.1	19
2	972.3	110
3	960.8	966
4	1012.4	155
5	1013.8	580
6	1055.7	150
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties 97.31
P-Value, Using Beta Approximation 0.0000
P-Value, Using Chi-Squared Approximation 0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	5	2766512	553302	5.81	0.0000
Within	1974	1.880E+08	95240		
Total	1979	1.908E+08			

Total number of values that were tied 1978
Max. diff. allowed between ties 0.00001

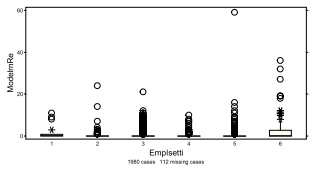
Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of ModelrnSt by Emplsetti

Emplsetti	Mean Rank	1	2	3	4	5
1	1202.11					
2	972.33	229.77*				
3	960.78	241.32*	11.55			
4	1012.38	189.72	40.05	51.60		
5	1013.80	188.31	41.47	53.02*	1.42	
6	1055.68	146.42	83.35	94.90*	43.30	41.88

Alpha 0.05 Standard Error for Comparison 16.309 TO 77.136
Critical Z Value 2.935 Critical Value for Comparison 47.871 TO 226.41

Kruskal-Wallis One-Way Nonparametric AOV for ModelrnRe by Emplsetti



Emplsetti	Mean Rank	Sample Size
1	1137.1	19
2	933.9	110
3	972.6	966
4	987.1	155
5	967.0	580
6	1222.8	150
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties	95.27
P-Value, Using Beta Approximation	0.0000
P-Value, Using Chi-Squared Approximation	0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	5	9482720	1896544	10.77	0.0000
Within	1974	3.475E+08	176027		
Total	1979	3.570E+08			

Total number of values that were tied 1972
Max. diff. allowed between ties 0.00001

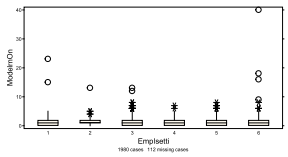
Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of ModelrnRe by Emplsetti

Emplsetti	Mean Rank	1	2	3	4	5
1	1137.05					
2	933.88	203.18				
3	972.65	164.40	38.77			
4	987.08	149.98	53.20	14.43		
5	967.01	170.04	33.14	5.64	20.06	
6	1222.77	85.72	288.89*	250.12*	235.69*	255.76*

Alpha	0.05	Standard Error for Comparison	22.309 TO 105.51
Critical Z Value	2.935	Critical Value for Comparison	65.483 TO 309.70

Kruskal-Wallis One-Way Nonparametric AOV for ModelrnOn by Emplsetti



Emplsetti	Mean Rank	Sample Size
1	957.9	19
2	1098.6	110
3	1074.7	966
4	838.8	155
5	883.0	580
6	945.4	150
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties 65.99
P-Value, Using Beta Approximation 0.0000
P-Value, Using Chi-Squared Approximation 0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	5	1.874E+07	3747762	12.66	0.0000
Within	1974	5.842E+08	295935		
Total	1979	6.029E+08			

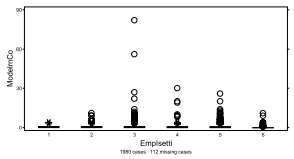
Total number of values that were tied 1973
Max. diff. allowed between ties 0.00001

Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of ModelrnOn by Emplsetti

Emplsetti	Mean Rank	1	2	3	4	5
1	957.92					
2	1098.63	140.71				
3	1074.73	116.81	23.90			
4	838.83	119.09	259.80*	235.90*		
5	882.96	74.97	215.68*	191.78*	44.13	
6	945.43	12.49	153.20	129.30	106.60	62.47

Alpha 0.05 Standard Error for Comparison 28.994 TO 137.13
Critical Z Value 2.935 Critical Value for Comparison 85.103 TO 402.50



Kruskal-Wallis One-Way Nonparametric AOV for ModelrnCo by Emplsetti

Emplsetti	Mean Rank	Sample Size
1	1013.5	19
2	1037.9	110
3	969.5	966
4	988.7	155
5	1055.0	580
6	840.6	150
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties	47.36
P-Value, Using Beta Approximation	0.0000
P-Value, Using Chi-Squared Approximation	0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	5	6469651	1293930	6.20	0.0000
Within	1974	4.117E+08	208563		
Total	1979	4.182E+08			

Total number of values that were tied 1972
Max. diff. allowed between ties 0.00001

Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of ModelrnCo by Emplsetti

Emplsetti	Mean Rank	1	2	3	4	5
1	1013.47					
2	1037.94	24.46				
3	969.47	44.01	68.47			
4	988.70	24.77	49.24	19.23		
5	1055.02	41.55	17.09	85.56*	66.32	
6	840.62	172.85	197.32*	128.85*	148.08	214.40*

Alpha	0.05	Standard Error for Comparison	24.147 TO 114.20
Critical Z Value	2.935	Critical Value for Comparison	70.875 TO 335.21

10. Is there an association between (rank) preferred modes of learning and employment status?

Chi-Square Test for Heterogeneity or Independence for 1 = RkPrfMdSt x Emplystat

RkPrfMdSt		Emplystat 1	2	3	4	5	6	7	
1	Observed	58	9	1	12	7	1	7	95
	Expected	46.33	15.89	3.06	13.09	6.96	1.92	7.74	
	Cell χ^2	2.94	2.99	1.39	0.09	0.00	0.44	0.07	
2	Observed	141	54	17	59	37	9	33	350
	Expected	170.69	58.56	11.29	48.22	25.64	7.08	28.51	
	Cell χ^2	5.17	0.35	2.89	2.41	5.03	0.52	0.71	
3	Observed	230	67	10	69	39	10	48	473
	Expected	230.68	79.14	15.26	65.17	34.65	9.57	38.53	
	Cell χ^2	0.00	1.86	1.81	0.23	0.55	0.02	2.33	
4	Observed	258	96	17	59	29	10	37	506
	Expected	246.78	84.66	16.32	69.72	37.07	10.24	41.22	
	Cell χ^2	0.51	1.52	0.03	1.65	1.76	0.01	0.43	
5	Observed	205	80	14	53	22	7	24	405
	Expected	197.52	67.76	13.06	55.80	29.67	8.19	32.99	
	Cell χ^2	0.28	2.21	0.07	0.14	1.98	0.17	2.45	
		892	306	59	252	134	37	149	1829

Overall Chi-Square	45.00
P-value	0.0058
Degrees of Freedom	24

Chi-Square Test for Heterogeneity or Independence for 1 = RkPrfMdOn Emplystat

RkPrfMdOn		Emplystat 1	2	3	4	5	6
1	Observed	53	28	2	15	13	5
	Expected	64.86	22.25	4.29	18.32	9.74	2.69
	Cell χ^2	2.17	1.49	1.22	0.60	1.09	1.98
2	Observed	129	51	9	36	22	6
	Expected	145.82	50.02	9.65	41.20	21.91	6.05
	Cell χ^2	1.94	0.02	0.04	0.66	0.00	0.00
3	Observed	189	69	15	64	28	5
	Expected	190.20	65.25	12.58	53.73	28.57	7.89
	Cell χ^2	0.01	0.22	0.47	1.96	0.01	1.06
4	Observed	207	66	14	60	38	11
	Expected	211.17	72.44	13.97	59.66	31.72	8.76
	Cell χ^2	0.08	0.57	0.00	0.00	1.24	0.57
5	Observed	314	92	19	77	33	10
	Expected	279.94	96.03	18.52	79.09	42.05	11.61
	Cell χ^2	4.14	0.17	0.01	0.06	1.95	0.22
		892	306	59	252	134	37

RkPrfMdOn		Emplystat 7	
1	Observed	17	133
	Expected	10.83	
	Cell χ^2	3.51	
2	Observed	46	299
	Expected	24.36	
	Cell χ^2	19.23	
3	Observed	20	390
	Expected	31.77	
	Cell χ^2	4.36	
4	Observed	37	433
	Expected	35.27	
	Cell χ^2	0.08	
5	Observed	29	574
	Expected	46.76	
	Cell χ^2	6.75	
		149	1829

Overall Chi-Square	57.88
P-value	0.0001
Degrees of Freedom	24

Chi-Square Test for Heterogeneity or Independence for 1 = RkPrfMdCo Emplystat

RkPrfMdCo		Emplystat 1	2	3	4	5	6	7	
1	Observed	99	34	6	23	9	4	11	186
	Expected	90.71	31.12	6.00	25.63	13.63	3.76	15.15	
	Cell χ^2	0.76	0.27	0.00	0.27	1.57	0.01	1.14	
2	Observed	327	102	22	84	29	11	26	601
	Expected	293.11	100.55	19.39	82.81	44.03	12.16	48.96	
	Cell χ^2	3.92	0.02	0.35	0.02	5.13	0.11	10.77	
3	Observed	162	61	14	44	32	6	27	346
	Expected	168.74	57.89	11.16	47.67	25.35	7.00	28.19	
	Cell χ^2	0.27	0.17	0.72	0.28	1.74	0.14	0.05	
4	Observed	162	63	10	64	27	5	36	367
	Expected	178.99	61.40	11.84	50.57	26.89	7.42	29.90	
	Cell χ^2	1.61	0.04	0.29	3.57	0.00	0.79	1.25	
5	Observed	142	46	7	37	37	11	49	329
	Expected	160.45	55.04	10.61	45.33	24.10	6.66	26.80	
	Cell χ^2	2.12	1.49	1.23	1.53	6.90	2.84	18.38	
		892	306	59	252	134	37	149	1829

Overall Chi-Square	69.75
P-value	0.0000
Degrees of Freedom	24

11. [Please rank the following in terms of your preferred mode of professional learning:] PFL3FtoF

During last 3 years	Long day care	1
teaching	Pre school	2
	Primary	3
	Middle	4
	Secondary	5
	Not teaching	6

Chi-Square Test for Heterogeneity or Independence for 1 = RkPrfMdFF by Emplsetti

RkPrfMdFF		Emplsetti 1	2	3	4	5	6	
1	Observed	11	89	700	102	380	92	
1374								
	Expected	13.18	76.33	670.35	107.56	402.48	104.09	
	Cell χ^2	0.36	2.10	1.31	0.29	1.26	1.40	
2	Observed	3	10	120	26	92	24	
275								
	Expected	2.64	15.28	134.17	21.53	80.56	20.83	
	Cell χ^2	0.05	1.82	1.50	0.93	1.63	0.48	
3	Observed	2	2	46	13	44	18	
125								
	Expected	1.20	6.94	60.98	9.79	36.62	9.47	
	Cell χ^2	0.53	3.52	3.68	1.06	1.49	7.68	
4	Observed	1	4	42	7	28	9	
91								
	Expected	0.87	5.06	44.40	7.12	26.66	6.89	
	Cell χ^2	0.02	0.22	0.13	0.00	0.07	0.64	
5	Observed	2	5	58	7	36	7	
115								
	Expected	1.10	6.39	56.11	9.00	33.69	8.71	
	Cell χ^2	0.73	0.30	0.06	0.45	0.16	0.34	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	34.21
P-value	0.0247
Degrees of Freedom	20

Chi-Square Test for Heterogeneity or Independence for 1 = RkPrfMdRe by Emplsetti

RkPrfMdRe		Emplsetti 1	2	3	4	5	6	
1	Observed	2	5	58	17	52	20	
154								
	Expected	1.48	8.56	75.13	12.06	45.11	11.67	
	Cell χ^2	0.18	1.48	3.91	2.03	1.05	5.95	
2	Observed	3	15	180	19	111	36	
364								
	Expected	3.49	20.22	177.59	28.49	106.63	27.58	
	Cell χ^2	0.07	1.35	0.03	3.16	0.18	2.57	
3	Observed	4	39	277	34	159	40	
553								
	Expected	5.31	30.72	269.80	43.29	161.99	41.89	
	Cell χ^2	0.32	2.23	0.19	1.99	0.06	0.09	
4	Observed	3	22	239	45	132	31	
472								
	Expected	4.53	26.22	230.28	36.95	138.26	35.76	
	Cell χ^2	0.52	0.68	0.33	1.75	0.28	0.63	
5	Observed	7	29	212	40	126	23	
437								
	Expected	4.19	24.28	213.20	34.21	128.01	33.11	
	Cell χ^2	1.88	0.92	0.01	0.98	0.03	3.09	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	37.95
P-value	0.0090
Degrees of Freedom	20

Chi-Square Test for Heterogeneity or Independence for 1 = RkPrfMdCo by Emplsetti

RkPrfMdCo		Emplsetti 1	2	3	4	5	6	
1	Observed	2	4	97	16	67	7	
193								
	Expected	1.85	10.72	94.16	15.11	56.54	14.62	
	Cell χ^2	0.01	4.21	0.09	0.05	1.94	3.97	
2	Observed	4	39	326	49	183	29	
630								
	Expected	6.05	35.00	307.36	49.32	184.55	47.73	
	Cell χ^2	0.69	0.46	1.13	0.00	0.01	7.35	
3	Observed	5	23	164	37	117	33	
379								
	Expected	3.64	21.06	184.91	29.67	111.02	28.71	
	Cell χ^2	0.51	0.18	2.36	1.81	0.32	0.64	
4	Observed	4	25	198	26	115	36	
404								
	Expected	3.88	22.44	197.10	31.63	118.34	30.61	
	Cell χ^2	0.00	0.29	0.00	1.00	0.09	0.95	
5	Observed	4	19	181	27	98	45	
374								
	Expected	3.59	20.78	182.47	29.28	109.56	28.33	
	Cell χ^2	0.05	0.15	0.01	0.18	1.22	9.80	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	39.50
P-value	0.0058
Degrees of Freedom	20

12. Is there an association between PL with groups of colleagues and employment status?

Chi-Square Test for Heterogeneity or Independence for 1 = PfLnCollg by Emplystat

PfLnCollg		Emplystat 1	2	3	4	5	6
1	Observed	7	4	0	3	2	4
	Expected	30.24	10.37	2.00	8.54	4.54	1.25
	Cell χ^2	17.86	3.92	2.00	3.60	1.42	6.01
2	Observed	420	148	27	114	62	17
	Expected	418.45	143.55	27.68	118.22	62.86	17.36
	Cell χ^2	0.01	0.14	0.02	0.15	0.01	0.01
3	Observed	426	141	30	125	63	13
	Expected	405.28	139.03	26.81	114.50	60.88	16.81
	Cell χ^2	1.06	0.03	0.38	0.96	0.07	0.86
4	Observed	39	13	2	10	7	3
	Expected	38.04	13.05	2.52	10.75	5.71	1.58
	Cell χ^2	0.02	0.00	0.11	0.05	0.29	1.28
		892	306	59	252	134	37

PfLnCollg		Emplystat 7	
1	Observed	42	62
	Expected	5.05	
	Cell χ^2	270.30	
2	Observed	70	858
	Expected	69.90	
	Cell χ^2	0.00	
3	Observed	33	831
	Expected	67.70	
	Cell χ^2	17.78	
4	Observed	4	78
	Expected	6.35	
	Cell χ^2	0.87	
		149	1829

Overall Chi-Square	329.21
P-value	0.0000
Degrees of Freedom	18

13. Is there an association between PL with collaborative activities and employment status?

Chi-Square Test for Heterogeneity or Independence for 1 = PfLnColla by Emplystat

PfLnColla		Emplystat 1	2	3	4	5	6
1	Observed	26	8	2	5	2	2
	Expected	32.68	11.21	2.16	9.23	4.91	1.36
	Cell χ^2	1.36	0.92	0.01	1.94	1.72	0.31
2	Observed	438	155	34	124	70	19
	Expected	451.12	154.76	29.84	127.45	67.77	18.71
	Cell χ^2	0.38	0.00	0.58	0.09	0.07	0.00
3	Observed	370	130	21	106	53	14
	Expected	358.46	122.97	23.71	101.27	53.85	14.87
	Cell χ^2	0.37	0.40	0.31	0.22	0.01	0.05
4	Observed	58	13	2	17	9	2
	Expected	49.75	17.07	3.29	14.05	7.47	2.06
	Cell χ^2	1.37	0.97	0.51	0.62	0.31	0.00
		892	306	59	252	134	37

PfLnColla		Emplystat 7	
1	Observed	22	67
	Expected	5.46	
	Cell χ^2	50.13	
2	Observed	85	925
	Expected	75.36	
	Cell χ^2	1.23	
3	Observed	41	735
	Expected	59.88	
	Cell χ^2	5.95	
4	Observed	1	102
	Expected	8.31	
	Cell χ^2	6.43	
		149	1829

Overall Chi-Square	76.29
P-value	0.0000
Degrees of Freedom	18

14. Is there an association between extended PL with multiple opportunities and employment status?

Chi-Square Test for Heterogeneity or Independence for 1 = PfLnExtnd by Emplystat

PfLnExtnd		Emplystat 1	2	3	4	5	6
1	Observed	87	38	16	32	16	12
	Expected	118.51	40.66	7.84	33.48	17.80	4.92
	Cell χ^2	8.38	0.17	8.50	0.07	0.18	10.21
2	Observed	626	206	36	170	88	21
	Expected	599.87	205.78	39.68	169.47	90.11	24.88
	Cell χ^2	1.14	0.00	0.34	0.00	0.05	0.61
3	Observed	160	57	7	44	26	4
	Expected	156.55	53.70	10.35	44.23	23.52	6.49
	Cell χ^2	0.08	0.20	1.09	0.00	0.26	0.96
4	Observed	19	5	0	6	4	0
	Expected	17.07	5.86	1.13	4.82	2.56	0.71
	Cell χ^2	0.22	0.13	1.13	0.29	0.80	0.71
		892	306	59	252	134	37

PfLnExtnd		Emplystat 7	
1	Observed	42	243
	Expected	19.80	
	Cell χ^2	24.90	
2	Observed	83	1230
	Expected	100.20	
	Cell χ^2	2.95	
3	Observed	23	321
	Expected	26.15	
	Cell χ^2	0.38	
4	Observed	1	35
	Expected	2.85	
	Cell χ^2	1.20	
		149	1829

Overall Chi-Square	64.94
P-value	0.0000
Degrees of Freedom	18

CAUTION: 1 cell have expected values less than 1.0

15. Is there an association between PL with groups of colleagues and employment setting?

Chi-Square Test for Heterogeneity or Independence for 1 = PfLnCollg x Emplsetti

PfLnCollg		Emplsetti 1	2	3	4	5	6	
1	Observed	2	4	35	7	14	39	
101								
	Expected	0.97	5.61	49.28	7.91	29.59	7.65	
	Cell χ^2	1.10	0.46	4.14	0.10	8.21	128.44	
2	Observed	10	68	414	75	292	77	
936								
	Expected	8.98	52.00	456.65	73.27	274.18	70.91	
	Cell χ^2	0.12	4.92	3.98	0.04	1.16	0.52	
3	Observed	7	35	468	64	257	33	
864								
	Expected	8.29	48.00	421.53	67.64	253.09	65.45	
	Cell χ^2	0.20	3.52	5.12	0.20	0.06	16.09	
4	Observed	0	3	49	9	17	1	
79								
	Expected	0.76	4.39	38.54	6.18	23.14	5.98	
	Cell χ^2	0.76	0.44	2.84	1.28	1.63	4.15	
		19	110	966	155	580	150	
1980								

Overall Chi-Square 189.48
P-value 0.0000
Degrees of Freedom 15

CAUTION: 2 cells have expected values less than 1.0

16. Is there an association between PL with active methods and employment setting?

Chi-Square Test for Heterogeneity or Independence for 1 = PfLnActiv x Emplsetti

PfLnActiv		Emplsetti 1	2	3	4	5	6	
1	Observed	0	1	14	0	8	5	
28								
	Expected	0.27	1.56	13.66	2.19	8.20	2.12	
	Cell χ^2	0.27	0.20	0.01	2.19	0.00	3.91	
2	Observed	7	52	422	66	309	84	
940								
	Expected	9.02	52.22	458.61	73.59	275.35	71.21	
	Cell χ^2	0.45	0.00	2.92	0.78	4.11	2.30	
3	Observed	10	53	481	82	239	55	
920								
	Expected	8.83	51.11	448.85	72.02	269.49	69.70	
	Cell χ^2	0.16	0.07	2.30	1.38	3.45	3.10	
4	Observed	2	4	49	7	24	6	
92								
	Expected	0.88	5.11	44.88	7.20	26.95	6.97	
	Cell χ^2	1.41	0.24	0.38	0.01	0.32	0.13	
		19	110	966	155	580	150	
1980								

Overall Chi-Square 30.10
P-value 0.0116
Degrees of Freedom 15

17. Is there an association between PL with collaborative activities and employment setting?

Chi-Square Test for Heterogeneity or Independence for 1 = PfLnColla x Emplsetti

PfLnColla		Emplsetti 1	2	3	4	5	6	
1	Observed	0	7	24	10	26	32	
99								
	Expected	0.95	5.50	48.30	7.75	29.00	7.50	
	Cell χ^2	0.95	0.41	12.23	0.65	0.31	80.03	
2	Observed	9	55	495	69	298	82	
1008								
	Expected	9.67	56.00	491.78	78.91	295.27	76.36	
	Cell χ^2	0.05	0.02	0.02	1.24	0.03	0.42	
3	Observed	8	44	384	64	235	35	
770								
	Expected	7.39	42.78	375.67	60.28	225.56	58.33	
	Cell χ^2	0.05	0.03	0.18	0.23	0.40	9.33	
4	Observed	2	4	63	12	21	1	
103								
	Expected	0.99	5.72	50.25	8.06	30.17	7.80	
	Cell χ^2	1.04	0.52	3.23	1.92	2.79	5.93	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	122.01
P-value	0.0000
Degrees of Freedom	15

CAUTION: 2 cells have expected values less than 1.0

18. Is there an association between extended PL with multiple opportunities and employment setting?

Chi-Square Test for Heterogeneity or Independence for 1 = PfLnExtnd x Emplsetti

PfLnExtnd		Emplsetti 1	2	3	4	5	6	
1	Observed	3	15	108	18	99	39	
282								
	Expected	2.71	15.67	137.58	22.08	82.61	21.36	
	Cell χ^2	0.03	0.03	6.36	0.75	3.25	14.56	
2	Observed	10	82	661	104	374	88	
1319								
	Expected	12.66	73.28	643.51	103.26	386.37	99.92	
	Cell χ^2	0.56	1.04	0.48	0.01	0.40	1.42	
3	Observed	5	13	172	30	101	18	
339								
	Expected	3.25	18.83	165.39	26.54	99.30	25.68	
	Cell χ^2	0.94	1.81	0.26	0.45	0.03	2.30	
4	Observed	1	0	25	3	6	5	
40								
	Expected	0.38	2.22	19.52	3.13	11.72	3.03	
	Cell χ^2	0.99	2.22	1.54	0.01	2.79	1.28	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	43.50
P-value	0.0001
Degrees of Freedom	15

CAUTION: 1 cell have expected values less than 1.0

19. Is there an association between modes of learning done and employment status?

20. [Identify the mode(s) of professional learning undertaken over the last 3 years] PFL3FtoF

During last 3 years	Long day care	1
teaching	Pre school	2
	Primary	3
	Middle	4
	Secondary	5
	Not teaching	6

Yes – 1 No - 2

Chi-Square Test for Heterogeneity or Independence for 1 = PL3Cmprc by Emplystat

		Emplystat 1	2	3	4	5	6
PL3Cmprc							
1	Observed	782	265	44	217	99	26
	Expected	738.38	253.30	48.84	208.60	110.92	30.63
	Cell χ^2	2.58	0.54	0.48	0.34	1.28	0.70
2	Observed	110	41	15	35	35	11
	Expected	153.62	52.70	10.16	43.40	23.08	6.37
	Cell χ^2	12.39	2.60	2.30	1.63	6.16	3.36
		892	306	59	252	134	37

		Emplystat 7	
PL3Cmprc			
1	Observed	81	1514
	Expected	123.34	
	Cell χ^2	14.53	
2	Observed	68	315
	Expected	25.66	
	Cell χ^2	69.85	
		149	1829

Overall Chi-Square	118.74
P-value	0.0000
Degrees of Freedom	6

21. Is there an association between modes of learning done and employment status?

Chi-Square Test for Heterogeneity or Independence for 1 = PL3FtoF by Emplsetti

PL3FtoF		Emplsetti 1	2	3	4	5	6
1	Observed	19	109	960	155	578	138
1959							
	Expected	18.80	108.83	955.75	153.36	573.85	148.41
	Cell χ^2	0.00	0.00	0.02	0.02	0.03	0.73
2	Observed	0	1	6	0	2	12
21							
	Expected	0.20	1.17	10.25	1.64	6.15	1.59
	Cell χ^2	0.20	0.02	1.76	1.64	2.80	68.11
		19	110	966	155	580	150
1980							

Overall Chi-Square	75.33
P-value	0.0000
Degrees of Freedom	5

Chi-Square Test for Heterogeneity or Independence for 1 = PL3Resch by Emplsetti

PL3Resch		Emplsetti 1	2	3	4	5	6
1	Observed	17	81	813	126	497	117
1651							
	Expected	15.84	91.72	805.49	129.24	483.63	125.08
	Cell χ^2	0.08	1.25	0.07	0.08	0.37	0.52
2	Observed	2	29	153	29	83	33
329							
	Expected	3.16	18.28	160.51	25.76	96.37	24.92
	Cell χ^2	0.42	6.29	0.35	0.41	1.86	2.62
		19	110	966	155	580	150
1980							

Overall Chi-Square	14.33
P-value	0.0137
Degrees of Freedom	5

Chi-Square Test for Heterogeneity or Independence
for 1 = PL3Cmprc Emplsetti

PL3Cmprc		Emplsetti 1	2	3	4	5	6	
1	Observed	14	81	780	132	508	89	
1604								
	Expected	15.39	89.11	782.56	125.57	469.86	121.52	
	Cell χ^2	0.13	0.74	0.01	0.33	3.10	8.70	
2	Observed	5	29	186	23	72	61	
376								
	Expected	3.61	20.89	183.44	29.43	110.14	28.48	
	Cell χ^2	0.54	3.15	0.04	1.41	13.21	37.12	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	68.45
P-value	0.0000
Degrees of Freedom	5

22. Is there an association between impacts of activities of learning done and employment status?

[For each specified mode of professional learning activity, please estimate the impact of the activity.]

Chi-Square Test for Heterogeneity or Independence for 1 = ImpactRes x Emplystat

ImpactRes		Emplystat 1	2	3	4	5	6	7
1	Observed	7	5	0	4	0	0	2
	Expected	8.95	3.08	0.54	2.49	1.20	0.35	1.40
	Cell χ^2	0.42	1.20	0.54	0.92	1.20	0.35	0.26
2	Observed	107	31	9	52	19	4	18
	Expected	119.30	41.02	7.20	33.19	15.97	4.70	18.63
	Cell χ^2	1.27	2.45	0.45	10.66	0.58	0.10	0.02
3	Observed	384	141	29	92	53	19	58
	Expected	385.72	132.62	23.29	107.31	51.63	15.19	60.24
	Cell χ^2	0.01	0.53	1.40	2.19	0.04	0.96	0.08
4	Observed	264	85	8	64	30	7	41
	Expected	248.04	85.28	14.97	69.01	33.20	9.77	38.74
	Cell χ^2	1.03	0.00	3.25	0.36	0.31	0.78	0.13
		762	262	46	212	102	30	119

Overall Chi-Square	31.48
P-value	0.0253
Degrees of Freedom	18

CAUTION: 2 cells have expected values less than 1.0

Chi-Square Test for Heterogeneity or Independence for 1 = ImpactOnl x Emplystat

ImpactOnl		Emplystat 1	2	3	4	5	6
1	Observed	29	4	1	8	2	0
	Expected	22.23	7.57	1.32	6.09	3.21	0.96
	Cell χ^2	2.06	1.68	0.08	0.60	0.45	0.96
2	Observed	180	49	9	55	26	4
	Expected	168.93	57.53	9.99	46.32	24.38	7.31
	Cell χ^2	0.73	1.26	0.10	1.63	0.11	1.50
3	Observed	359	133	21	99	48	20
	Expected	363.54	123.80	21.51	99.67	52.46	15.74
	Cell χ^2	0.06	0.68	0.01	0.00	0.38	1.15
4	Observed	125	50	10	28	24	6
	Expected	138.30	47.10	8.18	37.92	19.96	5.99
	Cell χ^2	1.28	0.18	0.40	2.59	0.82	0.00
		693	236	41	190	100	30

ImpactOnl		Emplystat 7	
1	Observed	1	45
	Expected	3.62	
	Cell χ^2	1.90	
2	Observed	19	342
	Expected	27.55	
	Cell χ^2	2.65	
3	Observed	56	736
	Expected	59.28	
	Cell χ^2	0.18	
4	Observed	37	280
	Expected	22.55	
	Cell χ^2	9.26	
		113	1403

Overall Chi-Square	32.72
P-value	0.0181
Degrees of Freedom	18

CAUTION: 1 cell have expected values less than 1.0

23. Is there an association between impacts of activities of learning done and employment settings

Chi-Square Test for Heterogeneity or Independence for 1 = ImpactStd x Emplsetti

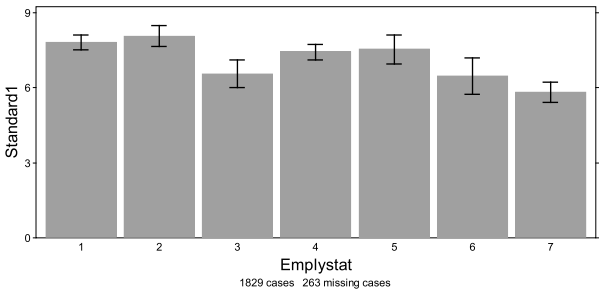
ImpactStd		Emplsetti 1	2	3	4	5	6	
1	Observed	0	0	9	2	11	0	
22								
	Expected	0.23	1.22	10.87	1.66	6.41	1.61	
	Cell χ^2	0.23	1.22	0.32	0.07	3.29	1.61	
2	Observed	2	14	141	20	94	17	
288								
	Expected	3.06	15.96	142.30	21.74	83.89	21.06	
	Cell χ^2	0.37	0.24	0.01	0.14	1.22	0.78	
3	Observed	7	46	477	69	268	51	
918								
	Expected	9.74	50.88	453.59	69.28	267.39	67.12	
	Cell χ^2	0.77	0.47	1.21	0.00	0.00	3.87	
4	Observed	9	34	211	37	121	56	
468								
	Expected	4.97	25.94	231.24	35.32	136.32	34.22	
	Cell χ^2	3.27	2.51	1.77	0.08	1.72	13.87	
		18	94	838	128	494	124	
1696								

Overall Chi-Square	39.04
P-value	0.0006
Degrees of Freedom	15

CAUTION: 1 cell have expected values less than 1.0

24. Employment setting by standards by employment status

Does the median Standard 1 significantly differ among employment status?



Kruskal-Wallis One-Way Nonparametric AOV for Standard1 by Emplystat

Emplystat	Mean Rank	Sample Size
1	921.4	892
2	963.8	306
3	867.9	59
4	952.4	252
5	914.7	134
6	851.0	37
7	748.1	149
Total	915.0	1829

Kruskal-Wallis Statistic, corrected for ties 20.10
P-Value, Using Beta Approximation 0.0026
P-Value, Using Chi-Squared Approximation 0.0027

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	6	5549400	924900	3.36	0.0027
Within	1822	5.017E+08	275383		
Total	1828	5.073E+08			

Total number of values that were tied 1817
Max. diff. allowed between ties 0.00001

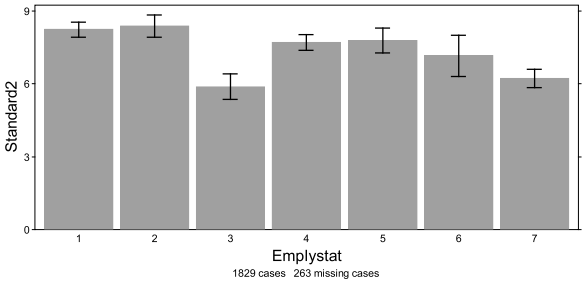
Cases Included 1829 Missing Cases 263

Dunn's All-Pairwise Comparisons Test of Standard1 by Emplystat

Emplystat	Mean Rank	1	2	3	4	5	6
1	921.37						
2	963.82	42.45					
3	867.91	53.46	95.91				
4	952.42	31.05	11.39	84.52			
5	914.67	6.70	49.15	46.76	37.76		
6	851.04	70.33	112.78	16.87	101.38	63.63	
7	748.13	173.24*	215.68*	119.77	204.29*	166.53	102.91

Alpha 0.05 Standard Error for Comparison 34.900 TO 110.47
Critical Z Value 3.038 Critical Value for Comparison 106.03 TO 335.62

Does the median Standard 2 significantly differ among employment status?



Kruskal-Wallis One-Way Nonparametric AOV for Standard2 by Emplystat

Emplystat	Mean Rank	Sample Size
1	928.6	892
2	948.9	306
3	750.0	59
4	946.4	252
5	933.0	134
6	871.0	37
7	771.0	149
Total	915.0	1829

Kruskal-Wallis Statistic, corrected for ties	20.18
P-Value, Using Beta Approximation	0.0025
P-Value, Using Chi-Squared Approximation	0.0026

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	6	5575731	929289	3.37	0.0026
Within	1822	5.019E+08	275492		
Total	1828	5.075E+08			

Total number of values that were tied 1816
Max. diff. allowed between ties 0.00001

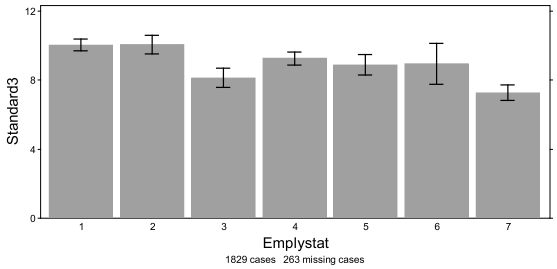
Cases Included 1829 Missing Cases 263

Dunn's All-Pairwise Comparisons Test of Standard2 by Emplystat

Emplystat	Mean Rank	1	2	3	4	5	6
1	928.57						
2	948.92	20.35					
3	749.99	178.58	198.93				
4	946.44	17.87	2.48	196.45			
5	932.96	4.39	15.96	182.97	13.48		
6	871.03	57.54	77.90	121.04	75.42	61.94	
7	771.02	157.55*	177.91*	21.03	175.43*	161.95	100.01

Alpha	0.05	Standard Error for Comparison	34.908 TO 110.50
Critical Z Value	3.038	Critical Value for Comparison	106.05 TO 335.70

Does the median Standard 3 significantly differ among employment status?



Kruskal-Wallis One-Way Nonparametric AOV for Standard3 by Emplystat

Emplystat	Mean Rank	Sample Size
1	938.7	892
2	942.5	306
3	870.2	59
4	933.3	252
5	886.9	134
6	873.1	37
7	739.2	149
Total	915.0	1829

Kruskal-Wallis Statistic, corrected for ties 20.62
P-Value, Using Beta Approximation 0.0020
P-Value, Using Chi-Squared Approximation 0.0021

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	6	5711369	951895	3.45	0.0021
Within	1822	5.023E+08	275706		
Total	1828	5.080E+08			

Total number of values that were tied 1819
Max. diff. allowed between ties 0.00001

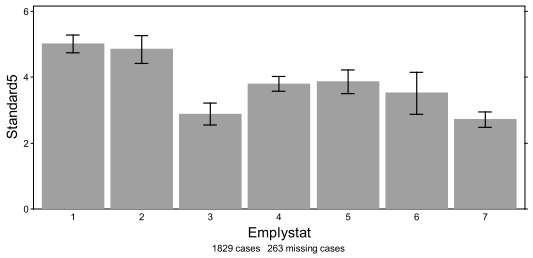
Cases Included 1829 Missing Cases 263

Dunn's All-Pairwise Comparisons Test of Standard3 by Emplystat

Emplystat	Mean Rank	1	2	3	4	5	6
1	938.70						
2	942.46	3.76					
3	870.15	68.55	72.31				
4	933.31	5.39	9.15	63.16			
5	886.87	51.84	55.59	16.71	46.45		
6	873.09	65.61	69.36	2.94	60.22	13.77	
7	739.19	199.51*	203.26*	130.96	194.12*	147.67	133.90

Alpha 0.05 Standard Error for Comparison 34.926 TO 110.55
Critical Z Value 3.038 Critical Value for Comparison 106.11 TO 335.87

Does the median Standard 5 significantly differ among employment status



Kruskal-Wallis One-Way Nonparametric AOV for Standard5 by Emplystat

Emplystat	Mean Rank	Sample Size
1	979.3	892
2	945.2	306
3	749.1	59
4	865.6	252
5	865.3	134
6	782.0	37
7	694.6	149
Total	915.0	1829

Kruskal-Wallis Statistic, corrected for ties	53.11
P-Value, Using Beta Approximation	0.0000
P-Value, Using Chi-Squared Approximation	0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	6	1.443E+07	2405651	8.97	0.0000
Within	1822	4.889E+08	268307		
Total	1828	5.033E+08			

Total number of values that were tied 1819
Max. diff. allowed between ties 0.00001

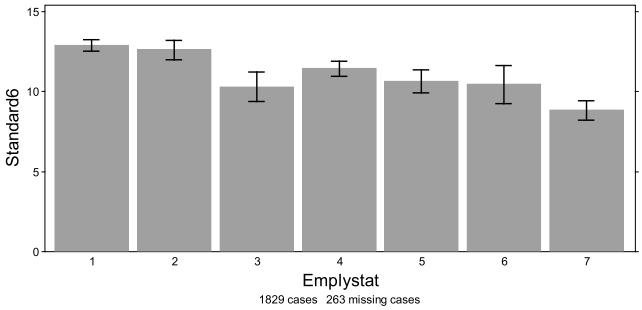
Cases Included 1829 Missing Cases 263

Dunn's All-Pairwise Comparisons Test of Standard5 by Emplystat

Emplystat	Mean Rank	1	2	3	4	5	6
1	979.34						
2	945.25	34.10					
3	749.07	230.27*	196.18				
4	865.64	113.71	79.61	116.57			
5	865.31	114.04	79.94	116.24	0.33		
6	781.99	197.36	163.26	32.92	83.65	83.32	
7	694.61	284.73*	250.63*	54.46	171.03*	170.70	87.38

Alpha	0.05	Standard Error for Comparison	34.762 TO 110.03
Critical Z Value	3.038	Critical Value for Comparison	105.61 TO 334.29

Does the median Standard 6 significantly differ among employment status



Kruskal-Wallis One-Way Nonparametric AOV for Standard6 by Emplystat

Emplystat	Mean Rank	Sample Size
1	959.0	892
2	940.2	306
3	819.1	59
4	922.5	252
5	848.9	134
6	841.5	37
7	702.9	149
Total	915.0	1829

Kruskal-Wallis Statistic, corrected for ties	35.87
P-Value, Using Beta Approximation	0.0000
P-Value, Using Chi-Squared Approximation	0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	6	9963498	1660583	6.06	0.0000
Within	1822	4.989E+08	273799		
Total	1828	5.088E+08			

Total number of values that were tied 1818
Max. diff. allowed between ties 0.00001

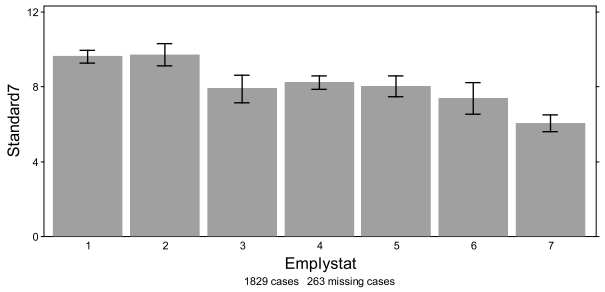
Cases Included 1829 Missing Cases 263

Dunn's All-Pairwise Comparisons Test of Standard6 by Emplystat

Emplystat	Mean Rank	1	2	3	4	5	6
1	958.99						
2	940.18	18.81					
3	819.13	139.86	121.06				
4	922.48	36.51	17.70	103.35			
5	848.94	110.05	91.25	29.81	73.54		
6	841.46	117.53	98.73	22.33	81.02	7.48	
7	702.92	256.07*	237.27*	116.21	219.56*	146.02	138.54

Alpha	0.05	Standard Error for Comparison	34.953 TO 110.64
Critical Z Value	3.038	Critical Value for Comparison	106.19 TO 336.13

Does the median Standard 7 significantly differ among employment status



Kruskal-Wallis One-Way Nonparametric AOV for Standard7 by Emplystat

Emplystat	Mean Rank	Sample Size
1	955.7	892
2	953.6	306
3	867.3	59
4	913.2	252
5	867.9	134
6	841.4	37
7	674.9	149
Total	915.0	1829

Kruskal-Wallis Statistic, corrected for ties 40.29
P-Value, Using Beta Approximation 0.0000
P-Value, Using Chi-Squared Approximation 0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	6	1.116E+07	1859484	6.82	0.0000
Within	1822	4.969E+08	272723		
Total	1828	5.081E+08			

Total number of values that were tied 1817
Max. diff. allowed between ties 0.00001

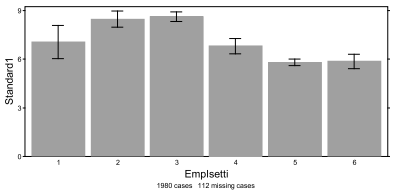
Cases Included 1829 Missing Cases 263

Dunn's All-Pairwise Comparisons Test of Standard7 by Emplystat

Emplystat	Mean Rank	1	2	3	4	5	6
1	955.67						
2	953.63	2.04					
3	867.32	88.35	86.31				
4	913.16	42.51	40.47	45.84			
5	867.85	87.81	85.78	0.53	45.30		
6	841.41	114.26	112.23	25.92	71.75	26.45	
7	674.87	280.80*	278.76*	192.45	238.29*	192.99*	166.54

Alpha 0.05 Standard Error for Comparison 34.926 TO 110.55
Critical Z Value 3.038 Critical Value for Comparison 106.11 TO 335.87

25. Does the median Standard 1 (Teachers know students and how they learn) significantly differ among employment settings?



Kruskal-Wallis One-Way Nonparametric AOV for Standard1 by Emplsetti

Emplsetti	Mean Rank	Sample Size
1	1023.4	19
2	1156.3	110
3	1105.9	966
4	918.3	155
5	834.0	580
6	801.4	150
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties 112.12
P-Value, Using Beta Approximation 0.0000
P-Value, Using Chi-Squared Approximation 0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	5	3.627E+07	7254829	23.58	0.0000
Within	1974	6.073E+08	307648		
Total	1979	6.436E+08			

Total number of values that were tied 1968
Max. diff. allowed between ties 0.00001

Cases Included 1980 Missing Cases 112

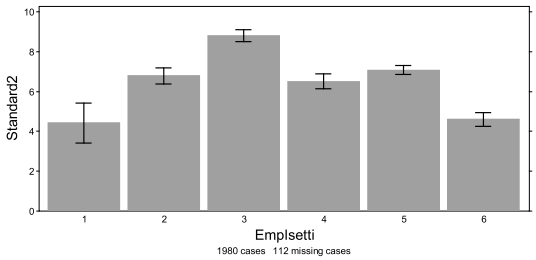
During last 3 years	Long day care	1
teaching	Pre school	2
	Primary	3
	Middle	4
	Secondary	5
	Not teaching	6

Dunn's All-Pairwise Comparisons Test of Standard1 by Emplsetti

Emplsetti	Mean Rank	1	2	3	4	5
1	1023.42					
2	1156.28	132.86				
3	1105.87	82.45	50.41			
4	918.32	105.10	237.96*	187.56*		
5	834.02	189.40	322.26*	271.86*	84.30	
6	801.43	221.99	354.85*	304.44*	116.89	32.59

Alpha 0.05 Standard Error for Comparison 29.956 TO 141.68
Critical Z Value 2.935 Critical Value for Comparison 87.926 TO 415.85

Does the median Standard 2 significantly differ among employment settings?



Kruskal-Wallis One-Way Nonparametric AOV for Standard2 by Emplsetti

Emplsetti	Mean Rank	Sample Size
1	631.2	19
2	960.6	110
3	1092.3	966
4	894.3	155
5	952.5	580
6	648.4	150
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties 100.04
P-Value, Using Beta Approximation 0.0000
P-Value, Using Chi-Squared Approximation 0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	5	3.239E+07	6477814	20.92	0.0000
Within	1974	6.114E+08	309718		
Total	1979	6.438E+08			

Total number of values that were tied 1968
Max. diff. allowed between ties 0.00001

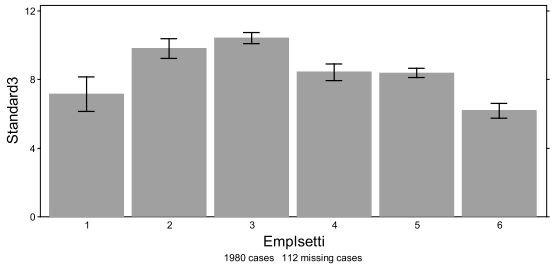
Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of Standard2 by Emplsetti

Emplsetti	Mean Rank	1	2	3	4	5
1	631.18					
2	960.58	329.39				
3	1092.33	461.14*	131.75			
4	894.30	263.11	66.28	198.03*		
5	952.52	321.34	8.05	139.80*	58.23	
6	648.44	17.26	312.13*	443.88*	245.85*	304.08*

Alpha 0.05 Standard Error for Comparison 29.960 TO 141.70
Critical Z Value 2.935 Critical Value for Comparison 87.939 TO 415.91

Does the median Standard 3 significantly differ among employment settings?



Kruskal-Wallis One-Way Nonparametric AOV for Standard3 by Emplsetti

Emplsetti	Mean Rank	Sample Size
1	862.2	19
2	1091.4	110
3	1082.6	966
4	927.6	155
5	913.3	580
6	703.0	150
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties 80.46
P-Value, Using Beta Approximation 0.0000
P-Value, Using Chi-Squared Approximation 0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	5	2.611E+07	5222062	16.67	0.0000
Within	1974	6.184E+08	313285		
Total	1979	6.445E+08			

Total number of values that were tied 1970
Max. diff. allowed between ties 0.00001

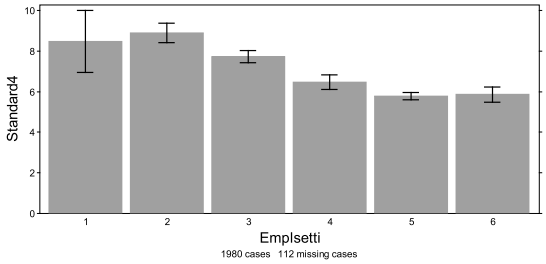
Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of Standard3 by Emplsetti

Emplsetti	Mean Rank	1	2	3	4	5
1	862.21					
2	1091.42	229.21				
3	1082.65	220.44	8.78			
4	927.58	65.37	163.84	155.06*		
5	913.26	51.05	178.16*	169.38*	14.32	
6	702.97	159.24	388.46*	379.68*	224.62*	210.30*

Alpha 0.05 Standard Error for Comparison 29.978 TO 141.78
Critical Z Value 2.935 Critical Value for Comparison 87.991 TO 416.16

Does the median Standard 4 significantly differ among employment settings?



Kruskal-Wallis One-Way Nonparametric AOV for Standard4 by Emplsetti

Emplsetti	Mean Rank	Sample Size
1	1104.0	19
2	1264.4	110
3	1054.1	966
4	962.5	155
5	862.9	580
6	888.0	150
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties	72.92
P-Value, Using Beta Approximation	0.0000
P-Value, Using Chi-Squared Approximation	0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	5	2.354E+07	4708049	15.01	0.0000
Within	1974	6.193E+08	313737		
Total	1979	6.429E+08			

Total number of values that were tied 1968
Max. diff. allowed between ties 0.00001

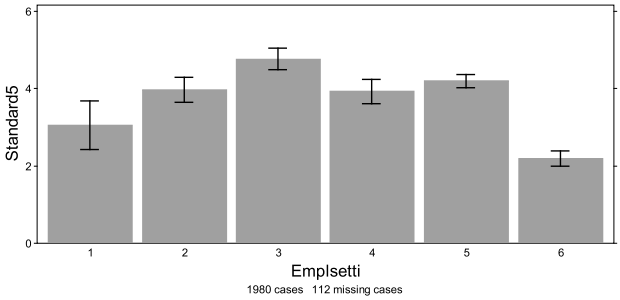
Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of Standard4 by Emplsetti

Emplsetti	Mean Rank	1	2	3	4	5
1	1104.03					
2	1264.37	160.34				
3	1054.09	49.93	210.28*			
4	962.50	141.53	301.87*	91.59		
5	862.91	241.11	401.45*	191.18*	99.59	
6	888.01	216.01	376.35*	166.08*	74.49	25.10

Alpha	0.05	Standard Error for Comparison	29.939 TO 141.60
Critical Z Value	2.935	Critical Value for Comparison	87.877 TO 415.62

Does the median Standard 5 significantly differ among employment settings?



Kruskal-Wallis One-Way Nonparametric AOV for Standard5 by Emplsetti

Emplsetti	Mean Rank	Sample Size
1	874.4	19
2	1011.8	110
3	1023.5	966
4	980.0	155
5	1019.7	580
6	674.7	150
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties	52.92
P-Value, Using Beta Approximation	0.0000
P-Value, Using Chi-Squared Approximation	0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	5	1.683E+07	3366131	10.70	0.0000
Within	1974	6.212E+08	314711		
Total	1979	6.381E+08			

Total number of values that were tied 1970
Max. diff. allowed between ties 0.00001

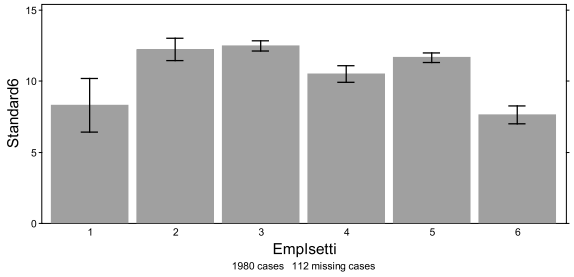
Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of Standard5 by Emplsetti

Emplsetti	Mean Rank	1	2	3	4	5
1	874.37					
2	1011.82	137.45				
3	1023.52	149.15	11.69			
4	980.03	105.66	31.80	43.49		
5	1019.74	145.37	7.92	3.77	39.72	
6	674.71	199.66	337.11*	348.81*	305.32*	345.03*

Alpha	0.05	Standard Error for Comparison	29.827 TO 141.07
Critical Z Value	2.935	Critical Value for Comparison	87.549 TO 414.07

Does the median Standard 6 significantly differ among employment settings?



Kruskal-Wallis One-Way Nonparametric AOV for Standard6 by Emplsetti

Emplsetti	Mean Rank	Sample Size
1	718.4	19
2	1059.6	110
3	1037.1	966
4	939.3	155
5	1006.2	580
6	666.8	150
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties 62.34
P-Value, Using Beta Approximation 0.0000
P-Value, Using Chi-Squared Approximation 0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	5	2.029E+07	4058901	12.81	0.0000
Within	1974	6.252E+08	316738		
Total	1979	6.455E+08			

Total number of values that were tied 1970
Max. diff. allowed between ties 0.00001

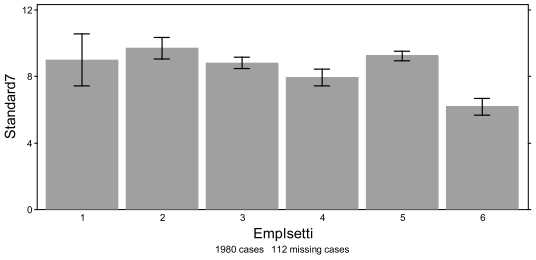
Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of Standard6 by Emplsetti

Emplsetti	Mean Rank	1	2	3	4	5
1	718.39					
2	1059.62	341.22				
3	1037.06	318.67	22.56			
4	939.25	220.86	120.36	97.81		
5	1006.17	287.78	53.45	30.89	66.92	
6	666.79	51.61	392.83*	370.27*	272.47*	339.38*

Alpha 0.05 Standard Error for Comparison 30.001 TO 141.89
Critical Z Value 2.935 Critical Value for Comparison 88.060 TO 416.48

Does the median Standard 7 significantly differ among employment settings?



Kruskal-Wallis One-Way Nonparametric AOV for Standard7 by Emplsetti

Emplsetti	Mean Rank	Sample Size
1	1015.7	19
2	1128.5	110
3	975.2	966
4	952.8	155
5	1062.8	580
6	743.9	150
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties	45.32
P-Value, Using Beta Approximation	0.0000
P-Value, Using Chi-Squared Approximation	0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	5	1.470E+07	2940790	9.22	0.0000
Within	1974	6.298E+08	319028		
Total	1979	6.445E+08			

Total number of values that were tied 1969
Max. diff. allowed between ties 0.00001

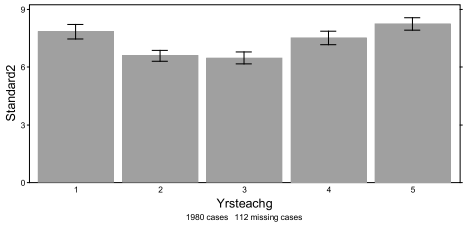
Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of Standard7 by Emplsetti

Emplsetti	Mean Rank	1	2	3	4	5
1	1015.74					
2	1128.45	112.71				
3	975.21	40.53	153.24			
4	952.76	62.98	175.69	22.45		
5	1062.82	47.09	65.63	87.61	110.06	
6	743.95	271.79	384.50*	231.27*	208.81*	318.88*

Alpha	0.05	Standard Error for Comparison	29.976 TO 141.77
Critical Z Value	2.935	Critical Value for Comparison	87.987 TO 416.14

26. Does the median Standard 1 significantly differ among yrs teaching?



Kruskal-Wallis One-Way Nonparametric AOV for Standard2 by Yrsteachg

Yrsteachg	Mean Rank	Sample Size
1	1059.1	219
2	929.3	254
3	895.0	241
4	981.5	352
5	1019.7	914
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties 15.42
P-Value, Using Beta Approximation 0.0038
P-Value, Using Chi-Squared Approximation 0.0039

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	4	4990981	1247745	3.86	0.0040
Within	1975	6.388E+08	323434		
Total	1979	6.438E+08			

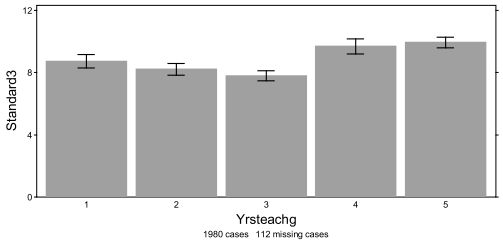
Total number of values that were tied 1968
Max. diff. allowed between ties 0.00001

Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of Standard2 by Yrsteachg

Yrsteachg	Mean Rank	1	2	3	4
1	1059.11				
2	929.30	129.80			
3	894.96	164.14*	34.34		
4	981.50	77.60	52.20	86.54	
5	1019.72	39.38	90.42	124.76*	38.22

Alpha 0.05 Standard Error for Comparison 35.778 TO 53.247
Critical Z Value 2.807 Critical Value for Comparison 100.43 TO 149.47



Kruskal-Wallis One-Way Nonparametric AOV for Standard3 by Yrsteachg

Yrsteachg	Mean Rank	Sample Size
1	983.1	219
2	919.4	254
3	899.2	241
4	1015.3	352
5	1026.6	914
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties 14.50
P-Value, Using Beta Approximation 0.0058
P-Value, Using Chi-Squared Approximation 0.0058

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	4	4706830	1176707	3.63	0.0059
Within	1975	6.398E+08	323964		
Total	1979	6.445E+08			

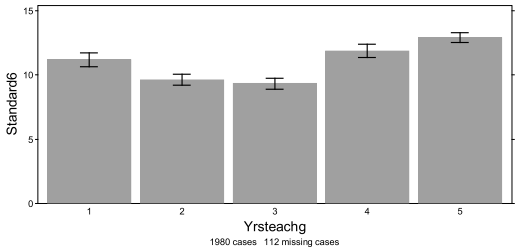
Total number of values that were tied 1970
Max. diff. allowed between ties 0.00001

Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of Standard3 by Yrsteachg

Yrsteachg	Mean Rank	1	2	3	4
1	983.06				
2	919.43	63.63			
3	899.23	83.83	20.20		
4	1015.29	32.22	95.85	116.06	
5	1026.55	43.49	107.12	127.32*	11.27

Alpha 0.05 Standard Error for Comparison 35.799 TO 53.278
Critical Z Value 2.807 Critical Value for Comparison 100.49 TO 149.55



Kruskal-Wallis One-Way Nonparametric AOV for Standard6 by Yrsteachg

Yrsteachg	Mean Rank	Sample Size
1	994.7	219
2	877.0	254
3	851.1	241
4	1008.3	352
5	1051.0	914
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties 35.06
P-Value, Using Beta Approximation 0.0000
P-Value, Using Chi-Squared Approximation 0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	4	1.141E+07	2852840	8.89	0.0000
Within	1975	6.341E+08	321075		
Total	1979	6.455E+08			

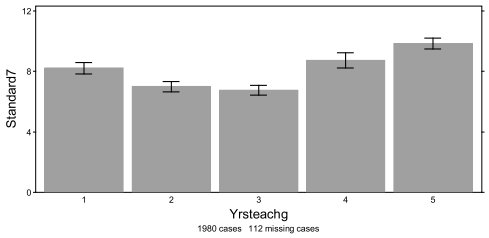
Total number of values that were tied 1970
Max. diff. allowed between ties 0.00001

Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of Standard6 by Yrsteachg

Yrsteachg	Mean Rank	1	2	3	4
1	994.68				
2	877.03	117.64			
3	851.06	143.61	25.97		
4	1008.27	13.59	131.24	157.21*	
5	1050.96	56.28	173.92*	199.89*	42.69

Alpha 0.05 Standard Error for Comparison 35.827 TO 53.319
Critical Z Value 2.807 Critical Value for Comparison 100.57 TO 149.67



Kruskal-Wallis One-Way Nonparametric AOV for Standard7 by Yrsteachg

Yrsteachg	Mean Rank	Sample Size
1	1015.8	219
2	868.4	254
3	849.4	241
4	976.7	352
5	1060.9	914
Total	990.5	1980

Kruskal-Wallis Statistic, corrected for ties	41.05
P-Value, Using Beta Approximation	0.0000
P-Value, Using Chi-Squared Approximation	0.0000

Parametric AOV Applied to Ranks

Source	DF	SS	MS	F	P
Between	4	1.332E+07	3329810	10.42	0.0000
Within	1975	6.311E+08	319568		
Total	1979	6.445E+08			

Total number of values that were tied 1969
Max. diff. allowed between ties 0.00001

Cases Included 1980 Missing Cases 112

Dunn's All-Pairwise Comparisons Test of Standard7 by Yrsteachg

Yrsteachg	Mean Rank	1	2	3	4
1	1015.79				
2	868.38	147.41			
3	849.42	166.37*	18.96		
4	976.72	39.07	108.33	127.29	
5	1060.88	45.09	192.50*	211.46*	84.17

Alpha	0.05	Standard Error for Comparison	35.797 TO 53.275
Critical Z Value	2.807	Critical Value for Comparison	100.48 TO 149.55

27. Is there an association between challenges of teachers and employment status?

Note: each challenge is analysed separately

Chi-Square Test for Heterogeneity or Independence for 1 ChallPrer by Emplystat

ChallPrer		Emplystat 1	2	3	4	5	6
1	Observed	526	180	31	99	49	13
	Expected	469.65	161.11	31.06	132.68	70.55	19.48
	Cell χ^2	6.76	2.21	0.00	8.55	6.58	2.16
2	Observed	339	115	25	138	81	19
	Expected	386.26	132.51	25.55	109.12	58.03	16.02
	Cell χ^2	5.78	2.31	0.01	7.64	9.10	0.55
3	Observed	20	6	3	10	4	4
	Expected	25.36	8.70	1.68	7.16	3.81	1.05
	Cell χ^2	1.13	0.84	1.04	1.12	0.01	8.26
4	Observed	7	5	0	5	0	1
	Expected	10.73	3.68	0.71	3.03	1.61	0.45
	Cell χ^2	1.30	0.47	0.71	1.28	1.61	0.69
		892	306	59	252	134	37

ChallPrer		Emplystat 7	
1	Observed	65	963
	Expected	78.45	
	Cell χ^2	2.31	
2	Observed	75	792
	Expected	64.52	
	Cell χ^2	1.70	
3	Observed	5	52
	Expected	4.24	
	Cell χ^2	0.14	
4	Observed	4	22
	Expected	1.79	
	Cell χ^2	2.72	
		149	1829

Overall Chi-Square	77.00
P-value	0.0000
Degrees of Freedom	18

CAUTION: 2 cells have expected values less than 1.0

Chi-Square Test for Heterogeneity or Independence for 1 ChallCost by Emplystat

ChallCost		Emplystat 1	2	3	4	5	6
1	Observed	150	46	7	21	18	1
	Expected	125.83	43.16	8.32	35.55	18.90	5.22
	Cell χ^2	4.64	0.19	0.21	5.95	0.04	3.41
2	Observed	406	140	30	127	63	15
	Expected	410.15	140.70	27.13	115.87	61.62	17.01
	Cell χ^2	0.04	0.00	0.30	1.07	0.03	0.24
3	Observed	279	105	17	92	39	13
	Expected	291.64	100.05	19.29	82.39	43.81	12.10
	Cell χ^2	0.55	0.25	0.27	1.12	0.53	0.07
4	Observed	57	15	5	12	14	8
	Expected	64.38	22.08	4.26	18.19	9.67	2.67
	Cell χ^2	0.85	2.27	0.13	2.10	1.94	10.64
		892	306	59	252	134	37

ChallCost		Emplystat 7	
1	Observed	15	258
	Expected	21.02	
	Cell χ^2	1.72	
2	Observed	60	841
	Expected	68.51	
	Cell χ^2	1.06	
3	Observed	53	598
	Expected	48.72	
	Cell χ^2	0.38	
4	Observed	21	132
	Expected	10.75	
	Cell χ^2	9.76	
		149	1829

Overall Chi-Square	49.76
P-value	0.0001
Degrees of Freedom	18

Chi-Square Test for Heterogeneity or Independence for 1 ChallEmpS by Emplystat

ChallEmpS		Emplystat 1	2	3	4	5	6
1	Observed	260	91	16	60	37	6
	Expected	238.97	81.98	15.81	67.51	35.90	9.91
	Cell χ^2	1.85	0.99	0.00	0.84	0.03	1.54
2	Observed	453	156	30	141	70	19
	Expected	459.90	157.77	30.42	129.93	69.09	19.08
	Cell χ^2	0.10	0.02	0.01	0.94	0.01	0.00
3	Observed	146	56	12	42	23	9
	Expected	159.97	54.88	10.58	45.19	24.03	6.64
	Cell χ^2	1.22	0.02	0.19	0.23	0.04	0.84
4	Observed	33	3	1	9	4	3
	Expected	33.16	11.38	2.19	9.37	4.98	1.38
	Cell χ^2	0.00	6.17	0.65	0.01	0.19	1.92
		892	306	59	252	134	37

ChallEmpS		Emplystat 7	
1	Observed	20	490
	Expected	39.92	
	Cell χ^2	9.94	
2	Observed	74	943
	Expected	76.82	
	Cell χ^2	0.10	
3	Observed	40	328
	Expected	26.72	
	Cell χ^2	6.60	
4	Observed	15	68
	Expected	5.54	
	Cell χ^2	16.16	
		149	1829

Overall Chi-Square	50.63
P-value	0.0001
Degrees of Freedom	18

28. Is there an association between challenges of teachers and employment setting?

Chi-Square Test for Heterogeneity or Independence for 1 = ChallPrer x Emplsetti

ChallPrer		Emplsetti 1	2	3	4	5	6	
1	Observed	8	67	463	82	343	78	
1041								
	Expected	9.99	57.83	507.88	81.49	304.94	78.86	
	Cell χ^2	0.40	1.45	3.97	0.00	4.75	0.01	
2	Observed	11	40	459	67	216	60	
853								
	Expected	8.19	47.39	416.16	66.78	249.87	64.62	
	Cell χ^2	0.97	1.15	4.41	0.00	4.59	0.33	
3	Observed	0	3	30	5	14	10	
62								
	Expected	0.59	3.44	30.25	4.85	18.16	4.70	
	Cell χ^2	0.59	0.06	0.00	0.00	0.95	5.99	
4	Observed	0	0	14	1	7	2	
24								
	Expected	0.23	1.33	11.71	1.88	7.03	1.82	
	Cell χ^2	0.23	1.33	0.45	0.41	0.00	0.02	
		19	110	966	155	580	150	
1980								

Overall Chi-Square 32.07
P-value 0.0063
Degrees of Freedom 15

CAUTION: 2 cells have expected values less than 1.0

Chi-Square Test for Heterogeneity or Independence for 1 = ChallCost x Emplsetti

ChallCost		Emplsetti 1	2	3	4	5	6	
1	Observed	4	14	129	27	84	16	
274								
	Expected	2.63	15.22	133.68	21.45	80.26	20.76	
	Cell χ^2	0.71	0.10	0.16	1.44	0.17	1.09	
2	Observed	10	54	428	72	278	57	
899								
	Expected	8.63	49.94	438.60	70.38	263.34	68.11	
	Cell χ^2	0.22	0.33	0.26	0.04	0.82	1.81	
3	Observed	2	34	327	43	192	61	
659								
	Expected	6.32	36.61	321.51	51.59	193.04	49.92	
	Cell χ^2	2.96	0.19	0.09	1.43	0.01	2.46	
4	Observed	3	8	82	13	26	16	
148								
	Expected	1.42	8.22	72.21	11.59	43.35	11.21	
	Cell χ^2	1.76	0.01	1.33	0.17	6.95	2.04	
		19	110	966	155	580	150	
1980								

Overall Chi-Square 26.53
P-value 0.0328
Degrees of Freedom 15

Chi-Square Test for Heterogeneity or Independence for 1 ChallWksc by Emplsetti

ChallWksc		Emplsetti 1	2	3	4	5	6	
1	Observed	4	13	118	15	58	25	
233								
	Expected	2.24	12.94	113.68	18.24	68.25	17.65	
	Cell χ^2	1.39	0.00	0.16	0.58	1.54	3.06	
2	Observed	7	56	452	76	219	72	
882								
	Expected	8.46	49.00	430.31	69.05	258.36	66.82	
	Cell χ^2	0.25	1.00	1.09	0.70	6.00	0.40	
3	Observed	8	33	328	44	246	42	
701								
	Expected	6.73	38.94	342.00	54.88	205.34	53.11	
	Cell χ^2	0.24	0.91	0.57	2.16	8.05	2.32	
4	Observed	0	8	68	20	57	11	
164								
	Expected	1.57	9.11	80.01	12.84	48.04	12.42	
	Cell χ^2	1.57	0.14	1.80	3.99	1.67	0.16	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	39.77
P-value	0.0005
Degrees of Freedom	15

29. Is there an association between challenges and employment location?

Chi-Square Test for Heterogeneity or Independence for 1= ChallPrer x Employloc

ChallPrer		Employloc 1	2	3	
1	Observed	732	207	8	947
	Expected	702.20	232.66	12.13	
	Cell χ^2	1.26	2.83	1.41	
2	Observed	555	208	15	778
	Expected	576.89	191.14	9.97	
	Cell χ^2	0.83	1.49	2.54	
3	Observed	29	19	0	48
	Expected	35.59	11.79	0.62	
	Cell χ^2	1.22	4.40	0.62	
4	Observed	15	7	0	22
	Expected	16.31	5.41	0.28	
	Cell χ^2	0.11	0.47	0.28	
		1331	441	23	1795

Overall Chi-Square	17.46
P-value	0.0077
Degrees of Freedom	6

Chi-Square Test for Heterogeneity or Independence for 1 = ChallCost x Employloc

ChallCost		Employloc 1	2	3	
1	Observed	208	42	3	253
	Expected	187.60	62.16	3.24	
	Cell χ^2	2.22	6.54	0.02	
2	Observed	617	203	11	831
	Expected	616.19	204.16	10.65	
	Cell χ^2	0.00	0.01	0.01	
3	Observed	420	157	7	584
	Expected	433.04	143.48	7.48	
	Cell χ^2	0.39	1.27	0.03	
4	Observed	86	39	2	127
	Expected	94.17	31.20	1.63	
	Cell χ^2	0.71	1.95	0.09	
		1331	441	23	1795

Overall Chi-Square	13.23
P-value	0.0395
Degrees of Freedom	6

Chi-Square Test for Heterogeneity or Independence for 1 = ChallWksc by Employloc

ChallWksc		Employloc 1	2	3	
1	Observed	157	43	4	204
	Expected	151.27	50.12	2.61	
	Cell χ^2	0.22	1.01	0.73	
2	Observed	620	170	3	793
	Expected	588.01	194.83	10.16	
	Cell χ^2	1.74	3.16	5.05	
3	Observed	460	178	10	648
	Expected	480.49	159.20	8.30	
	Cell χ^2	0.87	2.22	0.35	
4	Observed	94	50	6	150
	Expected	111.23	36.85	1.92	
	Cell χ^2	2.67	4.69	8.65	
		1331	441	23	1795

Overall Chi-Square	31.37
P-value	0.0000
Degrees of Freedom	6

Chi-Square Test for Heterogeneity or Independence for 1 = ChallFaml x Employloc

ChallFaml		Employloc 1	2	3	
1	Observed	259	78	9	346
	Expected	256.56	85.01	4.43	
	Cell χ^2	0.02	0.58	4.70	
2	Observed	684	207	8	899
	Expected	666.61	220.87	11.52	
	Cell χ^2	0.45	0.87	1.08	
3	Observed	322	122	3	447
	Expected	331.45	109.82	5.73	
	Cell χ^2	0.27	1.35	1.30	
4	Observed	66	34	3	103
	Expected	76.37	25.31	1.32	
	Cell χ^2	1.41	2.99	2.14	
		1331	441	23	1795

Overall Chi-Square	17.16
P-value	0.0087
Degrees of Freedom	6

Chi-Square Test for Heterogeneity or Independence for 1 = ChallRele by Employloc

ChallRele		Employloc 1	2	3	
1	Observed	504	125	5	634
	Expected	470.11	155.76	8.12	
	Cell χ^2	2.44	6.08	1.20	
2	Observed	698	230	13	941
	Expected	697.76	231.19	12.06	
	Cell χ^2	0.00	0.01	0.07	
3	Observed	111	68	4	183
	Expected	135.70	44.96	2.34	
	Cell χ^2	4.49	11.81	1.17	
4	Observed	18	18	1	37
	Expected	27.44	9.09	0.47	
	Cell χ^2	3.25	8.73	0.58	
		1331	441	23	1795

Overall Chi-Square	39.83
P-value	0.0000
Degrees of Freedom	6

CAUTION: 1 cell have expected values less than 1.0

30. Is there an association between challenges and yrs teaching?

Chi-Square Test for Heterogeneity or Independence for 1 = ChallPrer Yrsteachg

ChallPrer		Yrsteachg 1	2	3	4	5	
1	Observed	83	97	104	195	562	1041
	Expected	115.14	133.54	126.71	185.07	480.54	
	Cell χ^2	8.97	10.00	4.07	0.53	13.81	
2	Observed	116	142	129	139	327	853
	Expected	94.35	109.43	103.82	151.64	393.76	
	Cell χ^2	4.97	9.70	6.10	1.05	11.32	
3	Observed	13	13	8	12	16	62
	Expected	6.86	7.95	7.55	11.02	28.62	
	Cell χ^2	5.50	3.20	0.03	0.09	5.56	
4	Observed	7	2	0	6	9	24
	Expected	2.65	3.08	2.92	4.27	11.08	
	Cell χ^2	7.11	0.38	2.92	0.70	0.39	
		219	254	241	352	914	1980

Overall Chi-Square	96.42
P-value	0.0000
Degrees of Freedom	12

CAUTION: 4 cells have expected values less than 5.0

Chi-Square Test for Heterogeneity or Independence for 1 = ChallWksc Yrsteachg

ChallWksc		Yrsteachg 1	2	3	4	5	
1	Observed	16	19	28	38	132	233
	Expected	25.77	29.89	28.36	41.42	107.56	
	Cell χ^2	3.70	3.97	0.00	0.28	5.56	
2	Observed	99	103	100	152	428	882
	Expected	97.55	113.15	107.35	156.80	407.15	
	Cell χ^2	0.02	0.91	0.50	0.15	1.07	
3	Observed	76	107	88	131	299	701
	Expected	77.53	89.93	85.32	124.62	323.59	
	Cell χ^2	0.03	3.24	0.08	0.33	1.87	
4	Observed	28	25	25	31	55	164
	Expected	18.14	21.04	19.96	29.16	75.71	
	Cell χ^2	5.36	0.75	1.27	0.12	5.66	
		219	254	241	352	914	1980

Overall Chi-Square	34.87
P-value	0.0005
Degrees of Freedom	12

Chi-Square Test for Heterogeneity or Independence for 1 = ChallFaml x Yrsteachg

ChallFaml		Yrsteachg 1	2	3	4	5	
1	Observed	57	51	33	51	187	379
	Expected	41.92	48.62	46.13	67.38	174.95	
	Cell χ^2	5.43	0.12	3.74	3.98	0.83	
2	Observed	119	128	121	149	474	991
	Expected	109.61	127.13	120.62	176.18	457.46	
	Cell χ^2	0.80	0.01	0.00	4.19	0.60	
3	Observed	36	61	64	119	213	493
	Expected	54.53	63.24	60.01	87.64	227.58	
	Cell χ^2	6.30	0.08	0.27	11.22	0.93	
4	Observed	7	14	23	33	40	117
	Expected	12.94	15.01	14.24	20.80	54.01	
	Cell χ^2	2.73	0.07	5.39	7.16	3.63	
		219	254	241	352	914	1980

Overall Chi-Square	57.46
P-value	0.0000
Degrees of Freedom	12

Chi-Square Test for Heterogeneity or Independence for 1 = ChallRele Yrsteachg

		Yrsteachg					
ChallRele		**1**	**2**	**3**	**4**	**5**	
1	Observed	72	93	68	101	360	694
	Expected	76.76	89.03	84.47	123.38	320.36	
	Cell χ^2	0.30	0.18	3.21	4.06	4.90	
2	Observed	127	129	145	197	444	1042
	Expected	115.25	133.67	126.83	185.24	481.00	
	Cell χ^2	1.20	0.16	2.60	0.75	2.85	
3	Observed	16	29	21	46	94	206
	Expected	22.78	26.43	25.07	36.62	95.09	
	Cell χ^2	2.02	0.25	0.66	2.40	0.01	
4	Observed	4	3	7	8	16	38
	Expected	4.20	4.87	4.63	6.76	17.54	
	Cell χ^2	0.01	0.72	1.22	0.23	0.14	
		219	254	241	352	914	1980

Overall Chi-Square	27.87
P-value	0.0058
Degrees of Freedom	12

31 . Is there an association between paid PL and employment status?

"I personally paid for"

For PL, I paid	None	1
	Some	2
	All	3

Chi-Square Test for Heterogeneity or Independence
for 1 = PaidforPL Emplystat

		Emplystat 1	2	3	4	5	6
PaidforPL							
1	Observed	301	105	21	60	35	5
	Expected	265.80	91.18	17.58	75.09	39.93	11.03
	Cell χ^2	4.66	2.09	0.67	3.03	0.61	3.29
2	Observed	577	198	36	186	95	28
	Expected	593.53	203.61	39.26	167.68	89.16	24.62
	Cell χ^2	0.46	0.15	0.27	2.00	0.38	0.46
3	Observed	14	3	2	6	4	4
	Expected	32.68	11.21	2.16	9.23	4.91	1.36
	Cell χ^2	10.67	6.01	0.01	1.13	0.17	5.16
		892	306	59	252	134	37

		Emplystat 7	
PaidforPL			
1	Observed	18	545
	Expected	44.40	
	Cell χ^2	15.70	
2	Observed	97	1217
	Expected	99.14	
	Cell χ^2	0.05	
3	Observed	34	67
	Expected	5.46	
	Cell χ^2	149.25	
		149	1829

Overall Chi-Square	206.24
P-value	0.0000
Degrees of Freedom	12

32 . Is there an association between paid PL and employment setting?

During last 3 years	Long day care	1
teaching	Pre school	2
	Primary	3
	Middle	4
	Secondary	5
	Not teaching	6

Chi-Square Test for Heterogeneity or Independence for 1 = PaidforPL by Emplsetti

PaidforPL		**Emplsetti 1**	**2**	**3**	**4**	**5**	**6**
1	Observed	5	20	300	51	169	24
569							
	Expected	5.46	31.61	277.60	44.54	166.68	43.11
	Cell χ^2	0.04	4.26	1.81	0.94	0.03	8.47
2	Observed	13	83	625	99	398	103
1321							
	Expected	12.68	73.39	644.49	103.41	386.96	100.08
	Cell χ^2	0.01	1.26	0.59	0.19	0.31	0.09
3	Observed	1	7	41	5	13	23
90							
	Expected	0.86	5.00	43.91	7.05	26.36	6.82
	Cell χ^2	0.02	0.80	0.19	0.59	6.77	38.40
		19	110	966	155	580	150
1980							

Overall Chi-Square	64.78
P-value	0.0000
Degrees of Freedom	10

CAUTION: 1 cell have expected values less than 1.0

33. Is there an association between Scheduled time in lieu and employment status?

Chi-Square Test for Heterogeneity or Independence for 1 = GotSchdti x Emplystat

		Emplystat					
GotSchdti		**1**	**2**	**3**	**4**	**5**	**6**
1	Observed	769	253	42	215	101	23
	Expected	701.31	240.58	46.39	198.13	105.35	29.09
	Cell χ^2	6.53	0.64	0.41	1.44	0.18	1.28
2	Observed	123	53	17	37	33	14
	Expected	190.69	65.42	12.61	53.87	28.65	7.91
	Cell χ^2	24.03	2.36	1.53	5.28	0.66	4.69
Total		892	306	59	252	134	37

		Emplystat	
GotSchdti		**7**	**Total**
1	Observed	35	1438
	Expected	117.15	
	Cell χ^2	57.60	
2	Observed	114	391
	Expected	31.85	
	Cell χ^2	211.85	
Total		149	1829

Overall Chi-Square	318.48
P-value	0.0000
Degrees of Freedom	6

Chi-Square Test for Heterogeneity or Independence for 1 = GotSchdti x Emplsetti

		Emplsetti				
GotSchdti		**1**	**2**	**3**	**4**	**5**
1	Observed	13	71	749	129	477
	Expected	14.53	84.11	738.65	118.52	443.49
	Cell χ^2	0.16	2.04	0.15	0.93	2.53
2	Observed	6	39	217	26	103
	Expected	4.47	25.89	227.35	36.48	136.51
	Cell χ^2	0.52	6.64	0.47	3.01	8.22
Total		19	110	966	155	580

		Emplsetti	
GotSchdti		**6**	**Total**
1	Observed	75	1514
	Expected	114.70	
	Cell χ^2	13.74	
2	Observed	75	466
	Expected	35.30	
	Cell χ^2	44.64	
Total		150	1980

Overall Chi-Square	83.05
P-value	0.0000
Degrees of Freedom	5

Chi-Square Test for Heterogeneity or Independence for 1 = Gotslrysu x Emplystat

		Emplystat					
Gotslrysu		**1**	**2**	**3**	**4**	**5**	**6**
1	Observed	28	17	6	16	9	2
	Expected	39.50	13.55	2.61	11.16	5.93	1.64
	Cell χ^2	3.35	0.88	4.39	2.10	1.58	0.08
2	Observed	864	289	53	236	125	35
	Expected	852.50	292.45	56.39	240.84	128.07	35.36
	Cell χ^2	0.16	0.04	0.20	0.10	0.07	0.00
Total		892	306	59	252	134	37

		Emplystat	
Gotslrysu		**7**	**Total**
1	Observed	3	81
	Expected	6.60	
	Cell χ^2	1.96	
2	Observed	146	1748
	Expected	142.40	
	Cell χ^2	0.09	
Total		149	1829

Overall Chi-Square	15.01
P-value	0.0202
Degrees of Freedom	6

34. Is there an association between nonmonetary support and employment status?

Chi-Square Test for Heterogeneity or Independence for 1 = GotNonmon Emplystat

		Emplystat					
GotNonmon		**1**	**2**	**3**	**4**	**5**	**6**
1	Observed	207	67	15	69	29	5
	Expected	200.44	68.76	13.26	56.63	30.11	8.31
	Cell χ^2	0.21	0.05	0.23	2.70	0.04	1.32
2	Observed	685	239	44	183	105	32
	Expected	691.56	237.24	45.74	195.37	103.89	28.69
	Cell χ^2	0.06	0.01	0.07	0.78	0.01	0.38
Total		892	306	59	252	134	37

		Emplystat	
GotNonmon		**7**	**Total**
1	Observed	19	411
	Expected	33.48	
	Cell χ^2	6.26	
2	Observed	130	1418
	Expected	115.52	
	Cell χ^2	1.82	
Total		149	1829

Overall Chi-Square	13.95
P-value	0.0302
Degrees of Freedom	6

Chi-Square Test for Heterogeneity or Independence for 1 = GotNonmon Emplsetti

		Emplsetti				
GotNonmon		**1**	**2**	**3**	**4**	**5**
1	Observed	10	22	197	46	136
	Expected	4.28	24.78	217.59	34.91	130.65
	Cell χ^2	7.65	0.31	1.95	3.52	0.22
2	Observed	9	88	769	109	444
	Expected	14.72	85.22	748.41	120.09	449.35
	Cell χ^2	2.22	0.09	0.57	1.02	0.06
Total		19	110	966	155	580

		Emplsetti	
GotNonmon		**6**	**Total**
1	Observed	35	446
	Expected	33.79	
	Cell χ^2	0.04	
2	Observed	115	1534
	Expected	116.21	
	Cell χ^2	0.01	
Total		150	1980

Overall Chi-Square	17.67
P-value	0.0034
Degrees of Freedom	5

35. Is there an association between Needs and employment status?

K&U subject area:
Chi-Square Test for Heterogeneity or Independence for 1 = Needspart x Emplystat

Needspart		Emplystat 1	2	3	4	5	6
1	Observed	20	16	1	7	8	3
	Expected	33.65	11.54	2.23	9.51	5.06	1.40
	Cell χ^2	5.54	1.72	0.68	0.66	1.72	1.84
2	Observed	148	39	12	31	17	6
	Expected	132.65	45.51	8.77	37.48	19.93	5.50
	Cell χ^2	1.78	0.93	1.19	1.12	0.43	0.04
3	Observed	309	101	21	86	42	16
	Expected	304.32	104.40	20.13	85.97	45.72	12.62
	Cell χ^2	0.07	0.11	0.04	0.00	0.30	0.90
4	Observed	276	108	17	94	48	11
	Expected	292.62	100.38	19.35	82.67	43.96	12.14
	Cell χ^2	0.94	0.58	0.29	1.55	0.37	0.11
5	Observed	139	42	8	34	19	1
	Expected	128.75	44.17	8.52	36.37	19.34	5.34
	Cell χ^2	0.82	0.11	0.03	0.15	0.01	3.53
		892	306	59	252	134	37

Needspart		Emplystat 7	
1	Observed	14	69
	Expected	5.62	
	Cell χ^2	12.49	
2	Observed	19	272
	Expected	22.16	
	Cell χ^2	0.45	
3	Observed	49	624
	Expected	50.83	
	Cell χ^2	0.07	
4	Observed	46	600
	Expected	48.88	
	Cell χ^2	0.17	
5	Observed	21	264
	Expected	21.51	
	Cell χ^2	0.01	
		149	1829

Overall Chi-Square	40.73
P-value	0.0178
Degrees of Freedom	24

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsPedc by Emplystat

NeedsPedc		Emplystat 1	2	3	4	5	6
1	Observed	22	18	0	7	9	3
	Expected	37.07	12.72	2.45	10.47	5.57	1.54
	Cell χ^2	6.12	2.20	2.45	1.15	2.12	1.39
2	Observed	178	51	15	37	28	9
	Expected	168.74	57.89	11.16	47.67	25.35	7.00
	Cell χ^2	0.51	0.82	1.32	2.39	0.28	0.57
3	Observed	333	118	21	90	42	17
	Expected	327.25	112.26	21.65	92.45	49.16	13.57
	Cell χ^2	0.10	0.29	0.02	0.06	1.04	0.86
4	Observed	263	89	17	94	40	6
	Expected	267.26	91.68	17.68	75.50	40.15	11.09
	Cell χ^2	0.07	0.08	0.03	4.53	0.00	2.33
5	Observed	96	30	6	24	15	2
	Expected	91.69	31.45	6.06	25.90	13.77	3.80
	Cell χ^2	0.20	0.07	0.00	0.14	0.11	0.85
		892	306	59	252	134	37

NeedsPedc		Emplystat 7	
1	Observed	17	76
	Expected	6.19	
	Cell χ^2	18.87	
2	Observed	28	346
	Expected	28.19	
	Cell χ^2	0.00	
3	Observed	50	671
	Expected	54.66	
	Cell χ^2	0.40	
4	Observed	39	548
	Expected	44.64	
	Cell χ^2	0.71	
5	Observed	15	188
	Expected	15.32	
	Cell χ^2	0.01	
		149	1829

Overall Chi-Square	52.10
P-value	0.0008
Degrees of Freedom	24

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsAssP by Emplystat

NeedsAssP		Emplystat 1	2	3	4	5	6
1	Observed	1	2	0	2	2	1
	Expected	8.78	3.01	0.58	2.48	1.32	0.36
	Cell χ^2	6.89	0.34	0.58	0.09	0.35	1.11
2	Observed	97	34	11	17	10	9
	Expected	97.54	33.46	6.45	27.56	14.65	4.05
	Cell χ^2	0.00	0.01	3.21	4.04	1.48	6.07
3	Observed	345	107	22	76	41	10
	Expected	314.57	107.91	20.81	88.87	47.26	13.05
	Cell χ^2	2.94	0.01	0.07	1.86	0.83	0.71
4	Observed	316	124	17	107	62	14
	Expected	337.00	115.61	22.29	95.21	50.63	13.98
	Cell χ^2	1.31	0.61	1.26	1.46	2.56	0.00
5	Observed	133	39	9	50	19	3
	Expected	134.12	46.01	8.87	37.89	20.15	5.56
	Cell χ^2	0.01	1.07	0.00	3.87	0.07	1.18
		892	306	59	252	134	37

NeedsAssP		Emplystat 7	
1	Observed	10	18
	Expected	1.47	
	Cell χ^2	49.66	
2	Observed	22	200
	Expected	16.29	
	Cell χ^2	2.00	
3	Observed	44	645
	Expected	52.55	
	Cell χ^2	1.39	
4	Observed	51	691
	Expected	56.29	
	Cell χ^2	0.50	
5	Observed	22	275
	Expected	22.40	
	Cell χ^2	0.01	
		149	1829

Overall Chi-Square	97.54
P-value	0.0000
Degrees of Freedom	24

CAUTION: 2 cells have expected values less than 1.0

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsBehv by Emplystat

NeedsBehv		Emplystat 1	2	3	4	5	6
1	Observed	17	6	0	3	2	0
	Expected	15.12	5.19	1.00	4.27	2.27	0.63
	Cell χ^2	0.23	0.13	1.00	0.38	0.03	0.63
2	Observed	271	91	15	45	18	6
	Expected	230.19	78.97	15.23	65.03	34.58	9.55
	Cell χ^2	7.23	1.83	0.00	6.17	7.95	1.32
3	Observed	374	127	24	108	55	17
	Expected	365.29	125.31	24.16	103.20	54.87	15.15
	Cell χ^2	0.21	0.02	0.00	0.22	0.00	0.23
4	Observed	155	62	13	52	41	10
	Expected	184.35	63.24	12.19	52.08	27.69	7.65
	Cell χ^2	4.67	0.02	0.05	0.00	6.39	0.72
5	Observed	75	20	7	44	18	4
	Expected	97.05	33.29	6.42	27.42	14.58	4.03
	Cell χ^2	5.01	5.31	0.05	10.03	0.80	0.00
		892	306	59	252	134	37

NeedsBehv		Emplystat 7	
1	Observed	3	31
	Expected	2.53	
	Cell χ^2	0.09	
2	Observed	26	472
	Expected	38.45	
	Cell χ^2	4.03	
3	Observed	44	749
	Expected	61.02	
	Cell χ^2	4.75	
4	Observed	45	378
	Expected	30.79	
	Cell χ^2	6.55	
5	Observed	31	199
	Expected	16.21	
	Cell χ^2	13.49	
		149	1829

Overall Chi-Square	89.57
P-value	0.0000
Degrees of Freedom	24

CAUTION: 1 cell have expected values less than 1.0

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsDiff Emplystat

NeedsDiff		Emplystat 1	2	3	4	5	6
1	Observed	6	5	0	1	2	0
	Expected	8.78	3.01	0.58	2.48	1.32	0.36
	Cell χ^2	0.88	1.31	0.58	0.88	0.35	0.36
2	Observed	108	35	8	18	12	6
	Expected	100.95	34.63	6.68	28.52	15.17	4.19
	Cell χ^2	0.49	0.00	0.26	3.88	0.66	0.78
3	Observed	306	114	23	68	39	15
	Expected	297.98	102.22	19.71	84.18	44.76	12.36
	Cell χ^2	0.22	1.36	0.55	3.11	0.74	0.56
4	Observed	321	112	23	104	55	10
	Expected	332.61	114.10	22.00	93.97	49.97	13.80
	Cell χ^2	0.41	0.04	0.05	1.07	0.51	1.04
5	Observed	151	40	5	61	26	6
	Expected	151.67	52.03	10.03	42.85	22.79	6.29
	Cell χ^2	0.00	2.78	2.52	7.69	0.45	0.01
		892	306	59	252	134	37

NeedsDiff		Emplystat 7	
1	Observed	4	18
	Expected	1.47	
	Cell χ^2	4.38	
2	Observed	20	207
	Expected	16.86	
	Cell χ^2	0.58	
3	Observed	46	611
	Expected	49.78	
	Cell χ^2	0.29	
4	Observed	57	682
	Expected	55.56	
	Cell χ^2	0.04	
5	Observed	22	311
	Expected	25.34	
	Cell χ^2	0.44	
		149	1829

Overall Chi-Square	39.30
P-value	0.0254
Degrees of Freedom	24

CAUTION: 2 cells have expected values less than 1.0

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsTeac Emplystat

NeedsTeac		Emplystat 1	2	3	4	5	6
1	Observed	32	15	3	8	5	1
	Expected	33.16	11.38	2.19	9.37	4.98	1.38
	Cell χ^2	0.04	1.15	0.30	0.20	0.00	0.10
2	Observed	175	78	12	32	31	6
	Expected	175.57	60.23	11.61	49.60	26.38	7.28
	Cell χ^2	0.00	5.24	0.01	6.25	0.81	0.23
3	Observed	382	132	30	101	43	14
	Expected	366.75	125.81	24.26	103.61	55.09	15.21
	Cell χ^2	0.63	0.30	1.36	0.07	2.66	0.10
4	Observed	216	61	11	83	42	13
	Expected	231.17	79.30	15.29	65.31	34.73	9.59
	Cell χ^2	1.00	4.22	1.20	4.79	1.52	1.21
5	Observed	87	20	3	28	13	3
	Expected	85.35	29.28	5.65	24.11	12.82	3.54
	Cell χ^2	0.03	2.94	1.24	0.63	0.00	0.08
		892	306	59	252	134	37

NeedsTeac		Emplystat 7	
1	Observed	4	68
	Expected	5.54	
	Cell χ^2	0.43	
2	Observed	26	360
	Expected	29.33	
	Cell χ^2	0.38	
3	Observed	50	752
	Expected	61.26	
	Cell χ^2	2.07	
4	Observed	48	474
	Expected	38.61	
	Cell χ^2	2.28	
5	Observed	21	175
	Expected	14.26	
	Cell χ^2	3.19	
		149	1829

Overall Chi-Square	46.67
P-value	0.0037
Degrees of Freedom	24

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsTchA Emplystat

NeedsTchA		Emplystat 1	2	3	4	5	6
1	Observed	75	33	5	21	9	5
	Expected	78.03	26.77	5.16	22.04	11.72	3.24
	Cell χ^2	0.12	1.45	0.01	0.05	0.63	0.96
2	Observed	247	92	15	55	35	10
	Expected	239.95	82.31	15.87	67.79	36.05	9.95
	Cell χ^2	0.21	1.14	0.05	2.41	0.03	0.00
3	Observed	366	124	30	81	51	10
	Expected	347.24	119.12	22.97	98.10	52.16	14.40
	Cell χ^2	1.01	0.20	2.15	2.98	0.03	1.35
4	Observed	145	42	7	73	28	10
	Expected	164.84	56.55	10.90	46.57	24.76	6.84
	Cell χ^2	2.39	3.74	1.40	15.00	0.42	1.46
5	Observed	59	15	2	22	11	2
	Expected	61.94	21.25	4.10	17.50	9.30	2.57
	Cell χ^2	0.14	1.84	1.07	1.16	0.31	0.13
		892	306	59	252	134	37

NeedsTchA		Emplystat 7	
1	Observed	12	160
	Expected	13.03	
	Cell χ^2	0.08	
2	Observed	38	492
	Expected	40.08	
	Cell χ^2	0.11	
3	Observed	50	712
	Expected	58.00	
	Cell χ^2	1.10	
4	Observed	33	338
	Expected	27.54	
	Cell χ^2	1.08	
5	Observed	16	127
	Expected	10.35	
	Cell χ^2	3.09	
		149	1829

Overall Chi-Square	49.30
P-value	0.0017
Degrees of Freedom	24

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsInco Emplystat

NeedsInco		Emplystat 1	2	3	4	5	6
1	Observed	157	45	6	28	14	6
	Expected	129.73	44.50	8.58	36.65	19.49	5.38
	Cell χ^2	5.73	0.01	0.78	2.04	1.55	0.07
2	Observed	260	85	14	66	41	8
	Expected	252.63	86.66	16.71	71.37	37.95	10.48
	Cell χ^2	0.22	0.03	0.44	0.40	0.24	0.59
3	Observed	292	107	15	72	48	15
	Expected	290.67	99.71	19.23	82.12	43.67	12.06
	Cell χ^2	0.01	0.53	0.93	1.25	0.43	0.72
4	Observed	120	36	17	50	21	6
	Expected	136.56	46.85	9.03	38.58	20.51	5.66
	Cell χ^2	2.01	2.51	7.03	3.38	0.01	0.02
5	Observed	63	33	7	36	10	2
	Expected	82.42	28.27	5.45	23.28	12.38	3.42
	Cell χ^2	4.58	0.79	0.44	6.94	0.46	0.59
		892	306	59	252	134	37

NeedsInco		Emplystat 7	
1	Observed	10	266
	Expected	21.67	
	Cell χ^2	6.28	
2	Observed	44	518
	Expected	42.20	
	Cell χ^2	0.08	
3	Observed	47	596
	Expected	48.55	
	Cell χ^2	0.05	
4	Observed	30	280
	Expected	22.81	
	Cell χ^2	2.27	
5	Observed	18	169
	Expected	13.77	
	Cell χ^2	1.30	
		149	1829

Overall Chi-Square	54.69
P-value	0.0003
Degrees of Freedom	24

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsCare x Emplystat

NeedsCare		Emplystat 1	2	3	4	5	6
1	Observed	226	113	23	53	32	5
	Expected	242.39	83.15	16.03	68.48	36.41	10.05
	Cell χ^2	1.11	10.72	3.03	3.50	0.53	2.54
2	Observed	301	107	21	77	42	15
	Expected	292.13	100.22	19.32	82.53	43.89	12.12
	Cell χ^2	0.27	0.46	0.15	0.37	0.08	0.69
3	Observed	207	49	12	74	33	8
	Expected	201.91	69.26	13.35	57.04	30.33	8.38
	Cell χ^2	0.13	5.93	0.14	5.04	0.23	0.02
4	Observed	114	21	3	29	22	7
	Expected	107.78	36.97	7.13	30.45	16.19	4.47
	Cell χ^2	0.36	6.90	2.39	0.07	2.08	1.43
5	Observed	44	16	0	19	5	2
	Expected	47.79	16.40	3.16	13.50	7.18	1.98
	Cell χ^2	0.30	0.01	3.16	2.24	0.66	0.00
		892	306	59	252	134	37

NeedsCare		Emplystat 7	
1	Observed	45	497
	Expected	40.49	
	Cell χ^2	0.50	
2	Observed	36	599
	Expected	48.80	
	Cell χ^2	3.36	
3	Observed	31	414
	Expected	33.73	
	Cell χ^2	0.22	
4	Observed	25	221
	Expected	18.00	
	Cell χ^2	2.72	
5	Observed	12	98
	Expected	7.98	
	Cell χ^2	2.02	
		149	1829

Overall Chi-Square	63.35
P-value	0.0000
Degrees of Freedom	24

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsLead by Emplystat

NeedsLead		Emplystat 1	2	3	4	5	6
1	Observed	94	55	17	28	17	8
	Expected	126.80	43.50	8.39	35.82	19.05	5.26
	Cell χ^2	8.49	3.04	8.84	1.71	0.22	1.43
2	Observed	194	101	19	59	42	10
	Expected	226.29	77.63	14.97	63.93	33.99	9.39
	Cell χ^2	4.61	7.04	1.09	0.38	1.89	0.04
3	Observed	236	65	13	75	43	8
	Expected	229.71	78.80	15.19	64.89	34.51	9.53
	Cell χ^2	0.17	2.42	0.32	1.57	2.09	0.25
4	Observed	222	60	8	66	22	10
	Expected	203.37	69.77	13.45	57.45	30.55	8.44
	Cell χ^2	1.71	1.37	2.21	1.27	2.39	0.29
5	Observed	146	25	2	24	10	1
	Expected	105.83	36.31	7.00	29.90	15.90	4.39
	Cell χ^2	15.25	3.52	3.57	1.16	2.19	2.62
		892	306	59	252	134	37

NeedsLead		Emplystat 7	
1	Observed	41	260
	Expected	21.18	
	Cell χ^2	18.54	
2	Observed	39	464
	Expected	37.80	
	Cell χ^2	0.04	
3	Observed	31	471
	Expected	38.37	
	Cell χ^2	1.42	
4	Observed	29	417
	Expected	33.97	
	Cell χ^2	0.73	
5	Observed	9	217
	Expected	17.68	
	Cell χ^2	4.26	
		149	1829

Overall Chi-Square	108.11
P-value	0.0000
Degrees of Freedom	24

36. Is there an association between Needs and employment setting?

Chi-Square Test for Heterogeneity or Independence for 1 = Needscurr by Emplsetti

Needscurr		Emplsetti 1	2	3	4	5	6	
1	Observed	0	0	10	1	4	6	
21								
	Expected	0.20	1.17	10.25	1.64	6.15	1.59	
	Cell χ^2	0.20	1.17	0.01	0.25	0.75	12.22	
2	Observed	1	19	71	10	61	18	
180								
	Expected	1.73	10.00	87.82	14.09	52.73	13.64	
	Cell χ^2	0.31	8.10	3.22	1.19	1.30	1.40	
3	Observed	3	50	355	53	147	42	
650								
	Expected	6.24	36.11	317.12	50.88	190.40	49.24	
	Cell χ^2	1.68	5.34	4.52	0.09	9.89	1.07	
4	Observed	5	21	360	71	232	53	
742								
	Expected	7.12	41.22	362.01	58.09	217.35	56.21	
	Cell χ^2	0.63	9.92	0.01	2.87	0.99	0.18	
5	Observed	10	20	170	20	136	31	
387								
	Expected	3.71	21.50	188.81	30.30	113.36	29.32	
	Cell χ^2	10.64	0.10	1.87	3.50	4.52	0.10	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	88.04
P-value	0.0000
Degrees of Freedom	20

Chi-Square Test for Heterogeneity or Independence for 1 = Needspart by Emplsetti

Needspart		Emplsetti 1	2	3	4	5	6	
1	Observed	3	25	30	4	7	16	
85								
	Expected	0.82	4.72	41.47	6.65	24.90	6.44	
	Cell χ^2	5.85	87.08	3.17	1.06	12.87	14.19	
2	Observed	4	22	123	25	98	40	
312								
	Expected	2.99	17.33	152.22	24.42	91.39	23.64	
	Cell χ^2	0.34	1.26	5.61	0.01	0.48	11.33	
3	Observed	4	29	354	45	192	37	
661								
	Expected	6.34	36.72	322.49	51.74	193.63	50.08	
	Cell χ^2	0.87	1.62	3.08	0.88	0.01	3.41	
4	Observed	7	23	333	53	185	39	
640								
	Expected	6.14	35.56	312.24	50.10	187.47	48.48	
	Cell χ^2	0.12	4.43	1.38	0.17	0.03	1.86	
5	Observed	1	11	126	28	98	18	
282								
	Expected	2.71	15.67	137.58	22.08	82.61	21.36	
	Cell χ^2	1.08	1.39	0.97	1.59	2.87	0.53	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	169.53
P-value	0.0000
Degrees of Freedom	20

CAUTION: 1 cell have expected values less than 1.0

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsPedc Emplsetti

NeedsPedc		Emplsetti 1	2	3	4	5	6	
1	Observed	3	25	36	5	8	22	
99								
	Expected	0.95	5.50	48.30	7.75	29.00	7.50	
	Cell χ^2	4.42	69.14	3.13	0.98	15.21	28.03	
2	Observed	4	22	141	28	151	36	
382								
	Expected	3.67	21.22	186.37	29.90	111.90	28.94	
	Cell χ^2	0.03	0.03	11.04	0.12	13.66	1.72	
3	Observed	3	27	387	58	196	37	
708								
	Expected	6.79	39.33	345.42	55.42	207.39	53.64	
	Cell χ^2	2.12	3.87	5.01	0.12	0.63	5.16	
4	Observed	7	29	299	48	165	40	
588								
	Expected	5.64	32.67	286.87	46.03	172.24	44.55	
	Cell χ^2	0.33	0.41	0.51	0.08	0.30	0.46	
5	Observed	2	7	103	16	60	15	
203								
	Expected	1.95	11.28	99.04	15.89	59.46	15.38	
	Cell χ^2	0.00	1.62	0.16	0.00	0.00	0.01	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	168.32
P-value	0.0000
Degrees of Freedom	20

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsAssP x Emplsetti

NeedsAssP		Emplsetti 1	2	3	4	5	6	
1	Observed	0	3	14	0	1	12	
30								
	Expected	0.29	1.67	14.64	2.35	8.79	2.27	
	Cell χ^2	0.29	1.07	0.03	2.35	6.90	41.63	
2	Observed	1	12	84	20	83	30	
230								
	Expected	2.21	12.78	112.21	18.01	67.37	17.42	
	Cell χ^2	0.66	0.05	7.09	0.22	3.62	9.08	
3	Observed	4	26	334	63	219	42	
688								
	Expected	6.60	38.22	335.66	53.86	201.54	52.12	
	Cell χ^2	1.03	3.91	0.01	1.55	1.51	1.97	
4	Observed	6	49	375	61	200	48	
739								
	Expected	7.09	41.06	360.54	57.85	216.47	55.98	
	Cell χ^2	0.17	1.54	0.58	0.17	1.25	1.14	
5	Observed	8	20	159	11	77	18	
293								
	Expected	2.81	16.28	142.95	22.94	85.83	22.20	
	Cell χ^2	9.57	0.85	1.80	6.21	0.91	0.79	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	107.95
P-value	0.0000
Degrees of Freedom	20

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsICT Emplsetti

NeedsICT		Emplsetti 1	2	3	4	5	6
1	Observed	0	5	9	0	4	7
25							
	Expected	0.24	1.39	12.20	1.96	7.32	1.89
	Cell χ^2	0.24	9.39	0.84	1.96	1.51	13.77
2	Observed	2	12	85	22	63	18
202							
	Expected	1.94	11.22	98.55	15.81	59.17	15.30
	Cell χ^2	0.00	0.05	1.86	2.42	0.25	0.48
3	Observed	6	34	277	54	182	38
591							
	Expected	5.67	32.83	288.34	46.27	173.12	44.77
	Cell χ^2	0.02	0.04	0.45	1.29	0.46	1.02
4	Observed	8	40	405	60	232	60
805							
	Expected	7.72	44.72	392.74	63.02	235.81	60.98
	Cell χ^2	0.01	0.50	0.38	0.14	0.06	0.02
5	Observed	3	19	190	19	99	27
357							
	Expected	3.43	19.83	174.17	27.95	104.58	27.05
	Cell χ^2	0.05	0.04	1.44	2.86	0.30	0.00
		19	110	966	155	580	150
1980							

Overall Chi-Square	41.84
P-value	0.0029
Degrees of Freedom	20

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsBehv by Emplsetti

NeedsBehv		Emplsetti 1	2	3	4	5	6
1	Observed	1	0	13	1	16	14
45							
	Expected	0.43	2.50	21.95	3.52	13.18	3.41
	Cell χ^2	0.75	2.50	3.65	1.81	0.60	32.90
2	Observed	1	15	227	36	193	39
511							
	Expected	4.90	28.39	249.31	40.00	149.69	38.71
	Cell χ^2	3.11	6.31	2.00	0.40	12.53	0.00
3	Observed	2	44	405	70	229	43
793							
	Expected	7.61	44.06	386.89	62.08	232.29	60.08
	Cell χ^2	4.14	0.00	0.85	1.01	0.05	4.85
4	Observed	9	39	204	31	95	33
411							
	Expected	3.94	22.83	200.52	32.17	120.39	31.14
	Cell χ^2	6.48	11.45	0.06	0.04	5.36	0.11
5	Observed	6	12	117	17	47	21
220							
	Expected	2.11	12.22	107.33	17.22	64.44	16.67
	Cell χ^2	7.16	0.00	0.87	0.00	4.72	1.13
		19	110	966	155	580	150
1980							

Overall Chi-Square	114.85
P-value	0.0000
Degrees of Freedom	20

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsDiff by Emplsetti

NeedsDiff		Emplsetti 1	2	3	4	5	6	
1	Observed	0	1	10	0	7	13	
31								
	Expected	0.30	1.72	15.12	2.43	9.08	2.35	
	Cell χ^2	0.30	0.30	1.74	2.43	0.48	48.31	
2	Observed	0	16	107	13	71	31	
238								
	Expected	2.28	13.22	116.12	18.63	69.72	18.03	
	Cell χ^2	2.28	0.58	0.72	1.70	0.02	9.33	
3	Observed	7	43	310	60	192	39	
651								
	Expected	6.25	36.17	317.61	50.96	190.70	49.32	
	Cell χ^2	0.09	1.29	0.18	1.60	0.01	2.16	
4	Observed	8	34	363	58	219	48	
730								
	Expected	7.01	40.56	356.15	57.15	213.84	55.30	
	Cell χ^2	0.14	1.06	0.13	0.01	0.12	0.96	
5	Observed	4	16	176	24	91	19	
330								
	Expected	3.17	18.33	161.00	25.83	96.67	25.00	
	Cell χ^2	0.22	0.30	1.40	0.13	0.33	1.44	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	79.77
P-value	0.0000
Degrees of Freedom	20

Chi-Square Test for Heterogeneity or Independencefor 1 = NeedsTeac x Emplsetti

NeedsTeac		Emplsetti 1	2	3	4	5	6
1	Observed	1	4	46	5	12	12
80							
	Expected	0.77	4.44	39.03	6.26	23.43	6.06
	Cell χ^2	0.07	0.04	1.24	0.25	5.58	5.82
2	Observed	3	24	193	26	115	25
386							
	Expected	3.70	21.44	188.32	30.22	113.07	29.24
	Cell χ^2	0.13	0.30	0.12	0.59	0.03	0.62
3	Observed	3	35	405	75	234	45
797							
	Expected	7.65	44.28	388.84	62.39	233.46	60.38
	Cell χ^2	2.82	1.94	0.67	2.55	0.00	3.92
4	Observed	6	34	228	36	170	55
529							
	Expected	5.08	29.39	258.09	41.41	154.96	40.08
	Cell χ^2	0.17	0.72	3.51	0.71	1.46	5.56
5	Observed	6	13	94	13	49	13
188							
	Expected	1.80	10.44	91.72	14.72	55.07	14.24
	Cell χ^2	9.76	0.63	0.06	0.20	0.67	0.11
		19	110	966	155	580	150
1980							

Overall Chi-Square	50.26
P-value	0.0002
Degrees of Freedom	20

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsTchA by Emplsetti

NeedsTchA		Emplsetti 1	2	3	4	5	6
1	Observed	3	7	81	13	56	20
180							
	Expected	1.73	10.00	87.82	14.09	52.73	13.64
	Cell χ^2	0.94	0.90	0.53	0.08	0.20	2.97
2	Observed	3	29	266	43	152	32
525							
	Expected	5.04	29.17	256.14	41.10	153.79	39.77
	Cell χ^2	0.82	0.00	0.38	0.09	0.02	1.52
3	Observed	8	35	392	56	221	39
751							
	Expected	7.21	41.72	366.40	58.79	219.99	56.89
	Cell χ^2	0.09	1.08	1.79	0.13	0.00	5.63
4	Observed	1	30	159	35	113	45
383							
	Expected	3.68	21.28	186.86	29.98	112.19	29.02
	Cell χ^2	1.95	3.58	4.15	0.84	0.01	8.81
5	Observed	4	9	68	8	38	14
141							
	Expected	1.35	7.83	68.79	11.04	41.30	10.68
	Cell χ^2	5.18	0.17	0.01	0.84	0.26	1.03
		19	110	966	155	580	150
1980							

Overall Chi-Square	44.00
P-value	0.0015
Degrees of Freedom	20

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsInco by Emplsetti

NeedsInco		Emplsetti 1	2	3	4	5	6	
1	Observed	0	4	51	29	182	21	
287								
	Expected	2.75	15.94	140.02	22.47	84.07	21.74	
	Cell χ^2	2.75	8.95	56.60	1.90	114.07	0.03	
2	Observed	2	27	248	50	191	39	
557								
	Expected	5.34	30.94	271.75	43.60	163.16	42.20	
	Cell χ^2	2.09	0.50	2.08	0.94	4.75	0.24	
3	Observed	2	40	359	45	151	54	
651								
	Expected	6.25	36.17	317.61	50.96	190.70	49.32	
	Cell χ^2	2.89	0.41	5.39	0.70	8.26	0.44	
4	Observed	3	18	196	22	41	25	
305								
	Expected	2.93	16.94	148.80	23.88	89.34	23.11	
	Cell χ^2	0.00	0.07	14.97	0.15	26.16	0.16	
5	Observed	12	21	112	9	15	11	
180								
	Expected	1.73	10.00	87.82	14.09	52.73	13.64	
	Cell χ^2	61.10	12.10	6.66	1.84	26.99	0.51	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	363.69
P-value	0.0000
Degrees of Freedom	20

Chi-Square Test for Heterogeneity or Independencefor 1 = Needscros by Emplsetti

Needscros		Emplsetti 1	2	3	4	5	6	
1	Observed	0	5	13	1	18	16	
53								
	Expected	0.51	2.94	25.86	4.15	15.53	4.02	
	Cell χ^2	0.51	1.44	6.39	2.39	0.39	35.77	
2	Observed	1	22	124	23	106	31	
307								
	Expected	2.95	17.06	149.78	24.03	89.93	23.26	
	Cell χ^2	1.29	1.43	4.44	0.04	2.87	2.58	
3	Observed	3	35	358	59	224	47	
726								
	Expected	6.97	40.33	354.20	56.83	212.67	55.00	
	Cell χ^2	2.26	0.71	0.04	0.08	0.60	1.16	
4	Observed	6	31	344	61	178	43	
663								
	Expected	6.36	36.83	323.46	51.90	194.21	50.23	
	Cell χ^2	0.02	0.92	1.30	1.59	1.35	1.04	
5	Observed	9	17	127	11	54	13	
231								
	Expected	2.22	12.83	112.70	18.08	67.67	17.50	
	Cell χ^2	20.76	1.35	1.81	2.77	2.76	1.16	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	101.25
Degrees of Freedom	20
P-value	0.0000

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsCare by Emplsetti

NeedsCare		Emplsetti 1	2	3	4	5	6	
1	Observed	8	47	306	33	103	57	
554								
	Expected	5.32	30.78	270.28	43.37	162.28	41.97	
	Cell χ^2	1.35	8.55	4.72	2.48	21.66	5.38	
2	Observed	4	34	333	53	176	35	
635								
	Expected	6.09	35.28	309.80	49.71	186.01	48.11	
	Cell χ^2	0.72	0.05	1.74	0.22	0.54	3.57	
3	Observed	4	19	190	38	163	28	
442								
	Expected	4.24	24.56	215.64	34.60	129.47	33.48	
	Cell χ^2	0.01	1.26	3.05	0.33	8.68	0.90	
4	Observed	3	8	93	20	97	21	
242								
	Expected	2.32	13.44	118.07	18.94	70.89	18.33	
	Cell χ^2	0.20	2.20	5.32	0.06	9.62	0.39	
5	Observed	0	2	44	11	41	9	
107								
	Expected	1.03	5.94	52.20	8.38	31.34	8.11	
	Cell χ^2	1.03	2.62	1.29	0.82	2.98	0.10	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	91.82
P-value	0.0000
Degrees of Freedom	20

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsLead by Emplsetti

NeedsLead		Emplsetti 1	2	3	4	5	6	
1	Observed	1	16	171	9	63	33	
293								
	Expected	2.81	16.28	142.95	22.94	85.83	22.20	
	Cell χ^2	1.17	0.00	5.50	8.47	6.07	5.26	
2	Observed	4	29	268	35	128	29	
493								
	Expected	4.73	27.39	240.52	38.59	144.41	37.35	
	Cell χ^2	0.11	0.09	3.14	0.33	1.87	1.87	
3	Observed	3	26	238	44	160	35	
506								
	Expected	4.86	28.11	246.87	39.61	148.22	38.33	
	Cell χ^2	0.71	0.16	0.32	0.49	0.94	0.29	
4	Observed	9	27	185	48	148	27	
444								
	Expected	4.26	24.67	216.62	34.76	130.06	33.64	
	Cell χ^2	5.27	0.22	4.62	5.05	2.47	1.31	
5	Observed	2	12	104	19	81	26	
244								
	Expected	2.34	13.56	119.04	19.10	71.47	18.48	
	Cell χ^2	0.05	0.18	1.90	0.00	1.27	3.06	
		19	110	966	155	580	150	
1980								

Overall Chi-Square	62.18
P-value	0.0000
Degrees of Freedom	20

37. Is there an association between Needs and employment location?

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsTeac by Employloc

NeedsTeac		Employloc 1	2	3	
1	Observed	38	28	1	67
	Expected	49.68	16.46	0.86	
	Cell χ^2	2.75	8.09	0.02	
2	Observed	244	108	3	355
	Expected	263.23	87.22	4.55	
	Cell χ^2	1.41	4.95	0.53	
3	Observed	564	166	7	737
	Expected	546.49	181.07	9.44	
	Cell χ^2	0.56	1.25	0.63	
4	Observed	352	107	5	464
	Expected	344.06	114.00	5.95	
	Cell χ^2	0.18	0.43	0.15	
5	Observed	133	32	7	172
	Expected	127.54	42.26	2.20	
	Cell χ^2	0.23	2.49	10.44	
		1331	441	23	1795

Overall Chi-Square	34.12
P-value	0.0000
Degrees of Freedom	8

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsTchA by Employloc

NeedsTchA		Employloc 1	2	3	
1	Observed	117	37	0	154
	Expected	114.19	37.84	1.97	
	Cell χ^2	0.07	0.02	1.97	
2	Observed	351	125	3	479
	Expected	355.18	117.68	6.14	
	Cell χ^2	0.05	0.46	1.60	
3	Observed	542	153	7	702
	Expected	520.54	172.47	8.99	
	Cell χ^2	0.89	2.20	0.44	
4	Observed	239	90	5	334
	Expected	247.66	82.06	4.28	
	Cell χ^2	0.30	0.77	0.12	
5	Observed	82	36	8	126
	Expected	93.43	30.96	1.61	
	Cell χ^2	1.40	0.82	25.26	
		1331	441	23	1795

Overall Chi-Square	36.36
P-value	0.0000
Degrees of Freedom	8

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsCare by Employloc

NeedsCare		Employloc 1	2	3	
1	Observed	381	102	2	485
	Expected	359.63	119.16	6.21	
	Cell χ^2	1.27	2.47	2.86	
2	Observed	426	157	5	588
	Expected	436.00	144.46	7.53	
	Cell χ^2	0.23	1.09	0.85	
3	Observed	302	98	9	409
	Expected	303.28	100.48	5.24	
	Cell χ^2	0.01	0.06	2.70	
4	Observed	147	63	7	217
	Expected	160.91	53.31	2.78	
	Cell χ^2	1.20	1.76	6.40	
5	Observed	75	21	0	96
	Expected	71.18	23.59	1.23	
	Cell χ^2	0.20	0.28	1.23	
		1331	441	23	1795

Overall Chi-Square	22.62
P-value	0.0039
Degrees of Freedom	8

38. Is there an association between Needs and yrs teaching?

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsAssP Yrsteachg

NeedsAssP		Yrsteachg 1	2	3	4	5	Total
1	Observed	2	3	5	5	15	30
	Expected	3.32	3.85	3.65	5.33	13.85	
	Cell χ^2	0.52	0.19	0.50	0.02	0.10	
2	Observed	14	32	25	49	110	230
	Expected	25.44	29.51	27.99	40.89	106.17	
	Cell χ^2	5.14	0.21	0.32	1.61	0.14	
3	Observed	56	82	90	129	331	688
	Expected	76.10	88.26	83.74	122.31	317.59	
	Cell χ^2	5.31	0.44	0.47	0.37	0.57	
4	Observed	106	108	83	117	325	739
	Expected	81.74	94.80	89.95	131.38	341.13	
	Cell χ^2	7.20	1.84	0.54	1.57	0.76	
5	Observed	41	29	38	52	133	293
	Expected	32.41	37.59	35.66	52.09	135.25	
	Cell χ^2	2.28	1.96	0.15	0.00	0.04	
Total		219	254	241	352	914	1980

Overall Chi-Square	32.24
P-value	0.0093
Degrees of Freedom	16

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsICT by Yrsteachg

		Yrsteachg					
NeedsICT		**1**	**2**	**3**	**4**	**5**	**Total**
1	Observed	3	7	2	3	10	25
	Expected	2.77	3.21	3.04	4.44	11.54	
	Cell χ^2	0.02	4.49	0.36	0.47	0.21	
2	Observed	37	37	23	33	72	202
	Expected	22.34	25.91	24.59	35.91	93.25	
	Cell χ^2	9.62	4.74	0.10	0.24	4.84	
3	Observed	79	78	93	119	222	591
	Expected	65.37	75.82	71.93	105.07	272.82	
	Cell χ^2	2.84	0.06	6.17	1.85	9.46	
4	Observed	71	99	78	139	418	805
	Expected	89.04	103.27	97.98	143.11	371.60	
	Cell χ^2	3.65	0.18	4.08	0.12	5.79	
5	Observed	29	33	45	58	192	357
	Expected	39.49	45.80	43.45	63.47	164.80	
	Cell χ^2	2.78	3.58	0.06	0.47	4.49	
Total		219	254	241	352	914	1980

Overall Chi-Square	70.66
P-value	0.0000
Degrees of Freedom	16

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsBehv by Yrsteachg

		Yrsteachg					
NeedsBehv		**1**	**2**	**3**	**4**	**5**	**Total**
1	Observed	2	8	5	8	22	45
	Expected	4.98	5.77	5.48	8.00	20.77	
	Cell χ^2	1.78	0.86	0.04	0.00	0.07	
2	Observed	25	55	52	95	284	511
	Expected	56.52	65.55	62.20	90.84	235.89	
	Cell χ^2	17.58	1.70	1.67	0.19	9.81	
3	Observed	80	107	99	137	370	793
	Expected	87.71	101.73	96.52	140.98	366.06	
	Cell χ^2	0.68	0.27	0.06	0.11	0.04	
4	Observed	64	56	55	74	162	411
	Expected	45.46	52.72	50.03	73.07	189.72	
	Cell χ^2	7.56	0.20	0.49	0.01	4.05	
5	Observed	48	28	30	38	76	220
	Expected	24.33	28.22	26.78	39.11	101.56	
	Cell χ^2	23.02	0.00	0.39	0.03	6.43	
Total		219	254	241	352	914	1980

Overall Chi-Square	77.07
P-value	0.0000
Degrees of Freedom	16

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsDiff by Yrsteachg

		Yrsteachg					
NeedsDiff		**1**	**2**	**3**	**4**	**5**	**Total**
1	Observed	1	5	6	5	14	31
	Expected	3.43	3.98	3.77	5.51	14.31	
	Cell χ^2	1.72	0.26	1.31	0.05	0.01	
2	Observed	17	27	27	40	127	238
	Expected	26.32	30.53	28.97	42.31	109.86	
	Cell χ^2	3.30	0.41	0.13	0.13	2.67	
3	Observed	52	68	81	137	313	651
	Expected	72.00	83.51	79.24	115.73	300.51	
	Cell χ^2	5.56	2.88	0.04	3.91	0.52	
4	Observed	99	107	82	113	329	730
	Expected	80.74	93.65	88.85	129.78	336.98	
	Cell χ^2	4.13	1.90	0.53	2.17	0.19	
5	Observed	50	47	45	57	131	330
	Expected	36.50	42.33	40.17	58.67	152.33	
	Cell χ^2	4.99	0.51	0.58	0.05	2.99	
Total		219	254	241	352	914	1980

Overall Chi-Square	40.94
P-value	0.0006
Degrees of Freedom	16

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsTeac by Yrsteachg

		Yrsteachg					
NeedsTeac		**1**	**2**	**3**	**4**	**5**	**Total**
1	Observed	5	10	13	17	35	80
	Expected	8.85	10.26	9.74	14.22	36.93	
	Cell χ^2	1.67	0.01	1.09	0.54	0.10	
2	Observed	28	49	31	80	198	386
	Expected	42.69	49.52	46.98	68.62	178.18	
	Cell χ^2	5.06	0.01	5.44	1.89	2.20	
3	Observed	66	104	110	146	371	797
	Expected	88.15	102.24	97.01	141.69	367.91	
	Cell χ^2	5.57	0.03	1.74	0.13	0.03	
4	Observed	90	65	62	87	225	529
	Expected	58.51	67.86	64.39	94.04	244.19	
	Cell χ^2	16.95	0.12	0.09	0.53	1.51	
5	Observed	30	26	25	22	85	188
	Expected	20.79	24.12	22.88	33.42	86.78	
	Cell χ^2	4.08	0.15	0.20	3.90	0.04	
Total		219	254	241	352	914	1980

Overall Chi-Square	53.05
P-value	0.0000
Degrees of Freedom	16

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsTchA by Yrsteachg

		Yrsteachg					
NeedsTchA		**1**	**2**	**3**	**4**	**5**	**Total**
1	Observed	13	21	24	36	86	180
	Expected	19.91	23.09	21.91	32.00	83.09	
	Cell χ^2	2.40	0.19	0.20	0.50	0.10	
2	Observed	35	61	64	96	269	525
	Expected	58.07	67.35	63.90	93.33	242.35	
	Cell χ^2	9.16	0.60	0.00	0.08	2.93	
3	Observed	69	101	90	128	363	751
	Expected	83.07	96.34	91.41	133.51	346.67	
	Cell χ^2	2.38	0.23	0.02	0.23	0.77	
4	Observed	73	50	47	75	138	383
	Expected	42.36	49.13	46.62	68.09	176.80	
	Cell χ^2	22.16	0.02	0.00	0.70	8.51	
5	Observed	29	21	16	17	58	141
	Expected	15.60	18.09	17.16	25.07	65.09	
	Cell χ^2	11.52	0.47	0.08	2.60	0.77	
Total		219	254	241	352	914	1980

Overall Chi-Square	66.61
P-value	0.0000
Degrees of Freedom	16

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsInco by Yrsteachg

		Yrsteachg					
NeedsInco		**1**	**2**	**3**	**4**	**5**	**Total**
1	Observed	18	25	26	52	166	287
	Expected	31.74	36.82	34.93	51.02	132.48	
	Cell χ^2	5.95	3.79	2.28	0.02	8.48	
2	Observed	55	70	68	105	259	557
	Expected	61.61	71.45	67.80	99.02	257.12	
	Cell χ^2	0.71	0.03	0.00	0.36	0.01	
3	Observed	68	93	81	111	298	651
	Expected	72.00	83.51	79.24	115.73	300.51	
	Cell χ^2	0.22	1.08	0.04	0.19	0.02	
4	Observed	53	38	40	51	123	305
	Expected	33.73	39.13	37.12	54.22	140.79	
	Cell χ^2	11.00	0.03	0.22	0.19	2.25	
5	Observed	25	28	26	33	68	180
	Expected	19.91	23.09	21.91	32.00	83.09	
	Cell χ^2	1.30	1.04	0.76	0.03	2.74	
Total		219	254	241	352	914	1980

Overall Chi-Square	42.77
P-value	0.0003
Degrees of Freedom	16

Chi-Square Test for Heterogeneity or Independence for 1 = NeedsCare by Yrsteachg

		Yrsteachg					
NeedsCare		**1**	**2**	**3**	**4**	**5**	**Total**
1	Observed	49	60	64	101	280	554
	Expected	61.28	71.07	67.43	98.49	255.74	
	Cell χ^2	2.46	1.72	0.17	0.06	2.30	
2	Observed	50	79	83	108	315	635
	Expected	70.23	81.46	77.29	112.89	293.13	
	Cell χ^2	5.83	0.07	0.42	0.21	1.63	
3	Observed	64	65	55	76	182	442
	Expected	48.89	56.70	53.80	78.58	204.03	
	Cell χ^2	4.67	1.21	0.03	0.08	2.38	
4	Observed	40	38	29	49	86	242
	Expected	26.77	31.04	29.46	43.02	111.71	
	Cell χ^2	6.54	1.56	0.01	0.83	5.92	
5	Observed	16	12	10	18	51	107
	Expected	11.83	13.73	13.02	19.02	49.39	
	Cell χ^2	1.47	0.22	0.70	0.05	0.05	
Total		219	254	241	352	914	1980

Overall Chi-Square	40.62
P-value	0.0006
Degrees of Freedom	16

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