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Teachers' perceptions of their professional learning activities

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Teacher renewal and improvements in teaching quality through teacher professional development (PD) have been high on the agenda of many countries for some time. Several principles of effective PD for teachers, based on a synthesis of research evidence, have been espoused by the Centre for Educational Research and Innovation (CERI, 1998). A survey based on these principles was developed and administered to 395 primary and secondary teachers at the conclusion of a variety of curriculum, topic or Information Communication Technology (ICT) based professional learning activities which ranged from seminars and workshops to longer courses. While teacher age, gender and school level were not significant, teachers' ratings indicated ICT activities and longer courses contributed significantly to their professional renewal. Teachers also perceived longer courses were more applicable to their work. These findings affirm the CERI principles of effective PD and endorse the need for long term activities that have specific focus.

Teacher perceptions, teacher professional development, teacher renewal

Renewal of the teaching profession and improvements in the quality of teaching and learning through the provision of high quality professional development (PD) for teachers have been forefront of the educational agenda of many countries including members of the Organisation for Economic Co-operation and Development (OECD) for quite some time. Teachers are faced increasingly with the need to enact reforms, keep pace with rapidly developing fields of knowledge and technologies, and at the same time cater for an ever widening range of students in their classrooms with diverse interests, aptitudes and abilities (OECD, 2004). Furthermore, many countries including Australia have high proportions of older teachers in the workforce (McKenzie & Santiago, 2004; Ministerial Council for Education, Employment, Training and Youth Affairs, 2003) and while older teachers may be highly experienced and confident, there is a need for their renewal through professional learning to update their curriculum knowledge and pedagogical procedures and to rethink the structure of their teaching careers (Skilbeck & Connell, 2003). However, although considerable funding has been directed to the provision of professional learning for teachers in many countries (Borko, 2004; OECD, 2004), the notion of what constitutes "high quality" PD remains elusive as little is known about how and what teachers learn from the myriad of formal and informal, structured and unstructured, planned and serendipitous PD opportunities with which they are presented over the course of their teaching careers (Borko, 2004). Furthermore, teachers' perspectives of the PD activities in which they engage have received scant attention. There is a pressing need for empirical evidence about the PD activities that teachers participate in and the relationships between these activities and teacher renewal and enhancement of professional knowledge and skills. The present study was designed to address this need by investigating primary and secondary teachers' perceptions of a range of professional learning activities which varied in duration.

In 1998 the Centre for Educational Research and Innovation (CERI), under the auspices of the OECD, identified several critical features characteristic of effective PD for teachers, based on a synthesis of the research evidence. Similar principles have been espoused by the United States

National Partnership for Excellence and Accountability in Teaching. These essential characteristics can be grouped to form the seven major principles presented in Table 1. While there is a very real necessity for a variety of approaches to professional learning to address differences in people, contexts and working relationships (Fullan, 1999) and to take into account individual as well as organisational concerns (Guskey, 1995), Putnam & Borko, (1997) claim that these principles amount to little more than mantras or truisms as overall very little is known about what and how teachers learn from PD activities (Borko, 2004; Wilson & Berne, 1999) beyond the oft reported inadequacies of traditional one-off workshops (Sykes, 1996; Wilson & Berne, 1999). Although the research base on PD is reasonably extensive, most studies have focussed on failures and inadequacies in teacher professional learning processes (Guskey, 1995). Similarly, although characteristics of good professional learning activities for teachers are recognised widely (Lovett & Gilmore, 2003), they have been largely derived from educators' experiences (Cradler, Freeman, Cradler, & McNabb, 2002). Evidence from teachers' perspectives is essential if PD policy and practice is to be better informed (Borko, 2004).

Table 1. Principles of effective teacher professional development (CERI, 1998)

Principle	Characteristics of effective professional development
1	Experiential, engaging teachers in concrete tasks that elucidate learning & development
2	Participant driven. Grounded in inquiry, reflection & experimentation
3	Collaborative, interactional, involving sharing knowledge
4	Connected to and derived from teachers' work with students
5	Supported by modelling, coaching & collective problem solving around specific problems of practice
6	Connected to & integrated with comprehensive school change
7	Sustained, ongoing and intensive

The need for professional development for all teachers is indisputable (Ingvarson, Meiers & Beavis, 2005) with the vitality of the teaching profession dependent upon continuous professional learning which should be *planned, systematic, regular and relevant* (Committee for the Review of Teaching and Teacher Education, 2003). However, teacher professional learning is very fragmented and diverse, with outcomes dependent on the particular circumstances in which it is undertaken (OECD, 2004). Teacher PD takes place in formal, structured settings such as seminars, workshops and longer term programmes but other PD opportunities occur informally during the course of the teachers' working day (Wilson & Berne, 1999). Further, some teachers pursue individual learning opportunities to upgrade their qualifications, increase their knowledge and skills or provide them with a fillip to their career or pedagogy, others pursue a range of interests through one-off PD activities, while still others participate in school-based collaborative PD. However, teacher change through participation in PD is variable (Fennema, Carpenter, Franke, Levi, Jacobs & Empson, 1996; Franke, Carpenter, Levi & Fennema, 2001; Knapp & Peterson, 1995), with some elements of teacher knowledge and practice more amenable to change than others (Franke et al., 2001; Franke & Kazemi, 2001). Furthermore, teacher change is a somewhat slow process, with teachers requiring time to assimilate the changes into their pedagogical repertoire (Snow-Renner & Lauer, 2006) and to become confident in their delivery (Meiers & Ingvarson, 2005).

In the recent Programme for International Student Assessment (PISA) study, Australian teachers were ranked third in the world alongside the United Kingdom, United States of America & Sweden in their rate of participation in PD activities (McKenzie & Santiago, 2004). This ranking was based on reports from school principals who indicated 64% of Australian teachers had participated in some form of PD of at least one day's duration in the previous three months. While other studies confirm the overwhelming majority of Australian teachers do participate in some professional learning and development activities in any year (Skilbeck & Connell, 2003), participation has been found to be very uneven, with several gaps or discontinuities evident (McRae, Ainsworth, Groves, Rowland & Zbar, 2001). Participation rates vary from school to school and even among teachers within the same school, with no organised professional development evident for some schools and teachers (McRae et al., 2001). Furthermore, teacher PD is very largely a matter of choice by schools or individual teachers (Skilbeck & Connell,

2003), with the success of professional learning activities dependant on teacher motivation, enthusiasm and commitment (White, Mitchelmore, Branca & Maxon, 2004). Teacher age and experience are also significant factors, with teachers with more than 20 years of experience participating more often in PD activities than those with less experience (McRae et al., 2001). Clear cut patterns of professional learning activity are difficult to discern (Wilson & Berne, 1999), with most teachers engaging in what has been variously described as an episodic, kaleidoscopic (Skilbeck & Connell, 2003), patchwork quilt of topics (McRae et al., 2001) which are rarely sequential (Ingvarson, 2002). What emerges from this fragmented approach to PD is thus difficult to discern.

Professional learning activities across Australia utilise a range of delivery modes (Ingvarson, Meiers & Beavis, 2004) and tend to focus on pedagogy and curriculum although other roles and responsibilities of teachers are included (Skilbeck & Connell, 2003). An evaluation of 80 individual PD activities undertaken through the Australian Government Quality Teacher Programme in 2002 and 2003 found gaps were often evident between the optimal conditions indicated by research evidence and actual conditions provided for professional learning (Ingvarson et al., 2004). Furthermore, designers and providers of teacher professional learning programmes often struggled to articulate clearly the strategies that characterised their activities and the outcomes expected from them. Although Ingvarson et al., (2004) examined the efficacy of the PD activities in relation to teacher practices and student learning outcomes, teacher perceptions of the professional learning activities were not investigated in relation to any of the effectiveness principles identified by CERI (1998).

THE PRESENT STUDY

The present study investigated primary and secondary teachers' perceptions of professional learning activities they had undertaken through the administration of a common survey instrument that was based on five of the seven CERI (1998) principles. The CERI principles were adopted as the basis of the survey as although there is the consensus of expert opinion that the conditions for teacher learning embodied by these principles lead to more effective teacher professional development (Wilson & Berne, 1999), there is little empirical evidence in support of this agreement (Meiers & Ingvarson, 2005), particularly from teachers' perspectives. The need for the PD to be participant driven identified in CERI Principle 2 was not addressed in the survey as all teachers participated in a range of formal, structured PD programmes that differed in their duration. Thus, by their very nature, it may not have been feasible or possible for some of the PD activities to be teacher driven. CERI Principles 5 and 6 were also not included in the survey as the teachers came from a variety of schools across primary and secondary levels and had participated in a wide variety of activities that were not necessarily school based. CERI Principle 7 was measured indirectly as the PD activities differed in their design and duration. The professional learning activities teachers engaged in focussed on major curriculum areas such as Literacy, Numeracy and Science, specific topics such as *Bullying in Schools* and the *Education of Boys* and the use of *Information Communication Technologies* (ICT) and ranged from individual seminars, workshops and conferences to longer term professional learning courses. While some workshops were offered on more than one occasion with a total duration of up to 10 hours, longer term courses were offered over multiple occasions totalling a considerable number of hours.

Participants

Three hundred and ninety-five teachers, who had completed a professional learning activity between July, 2003 and April, 2004 participated in the survey. They ranged in age from 22 years to 63 years, with a median age of 46 years. One hundred and ninety two teachers taught at the primary school level, 200 were secondary teachers, (3 teachers did not indicate the level at which they taught) 142 teachers were male and 227 were female (26 teachers did not indicate their gender). Ninety-two teaches had participated in a curriculum based activity, 243 a topic based

activity and 60 teachers an ICT based PD activity. Overall, 232 teachers attended a seminar, 79 a workshop or conference and 84 attended a course.

The Survey

A *Teacher Perceptions of Professional Learning* (TPLP) (Yates & Harris, 2003) survey was developed for the study and consisted of 21 statements (items) about professional learning which were generated from the research literature to reflect the behavioural characteristics of the five of the seven CERI principles. The first two principles of experiential, inquiry and reflection based professional learning were combined and measured by 11 items, the third principle reflecting the collaborative nature of the PD activity was measured with three items and the fourth principle of relatedness to teachers' work with seven items. Table 2 presents the four CERI principles, and their corresponding item numbers in the survey, with 19 of the 21 items presented in Table 3. Items 10, 14 and 17 marked with an (R) were reversed. The initials PD used in all items except item 16 were defined in the survey as Professional Development. Teachers rated each item in relation to the professional activity that they had just completed on a four point scale ranging from 1 *strongly disagree*, 2 *disagree*, 3 *agree* to 4 *strongly agree*.

Table 2. Principles of effective professional learning (CERI, 1998)

Principle No.	Professional Learning Principle	Item numbers
Principles 1-2	Experiential, inquiry and reflection based professional learning	1, 2, 3, 4, 6, 7, 12, 13, 16, 19, 21
Principle 3	Collaborative sharing of knowledge among educators.	8, 15, 18
Principle 4	Related to teachers' work with students.	5, 9, 10(R), 11, 14(R), 17(R), 20

Method

All teachers were administered the common pencil and paper survey instrument between September, 2003 and April, 2004 immediately after the completion of programme of professional learning activity in which they had participated.

RESULTS

Teacher ratings were analysed with SPSS. Reversed items 10, 14 and 17 were recoded and the 21 items analysed with Principal Components. Three factors were formed, with the factor loadings of the 19 items shown in Table 3 based on an Oblimin resolution. Items 9 and 12 did not load into any of factors and were not considered further. The 12 items that loaded into Factor 1 reflected teachers' Professional Renewal, and with the exception of item 20 mirrored the behavioural characteristics designated as measuring CERI (1998) Principles 1 and 2. The two items that loaded into Factor 2 reflected school level Collegiality and mirrored CERI (1998) Principle 3, with the exception of item 15 measuring teacher sharing with colleagues which loaded into the Professional Renewal factor. The five items that loaded into Factor 3 reflected the Applicability of the PD to teachers' work and were indicative of CERI (1998) Principle 4, except for Item 20 measuring teachers' intention to use the PD knowledge in their classrooms which loaded into Factor 1. Professional Renewal which accounted for 38 per cent of the variance had a reliability alpha (Cronbach) of 0.90, Collegiality a reliability alpha of 0.65 and Applicability a reliability alpha of 0.74. The Collegiality and Applicability factors accounted for 8 per cent and 7 per cent of the variance respectively. The factor scores correlation between Professional Renewal and Applicability was $r = 0.37$. Mean scores in Table 3 are expressed on a 4 point scale from 1 (*strongly disagree*) to 4 (*strongly agree*).

Distribution of teachers' ratings for the first factor of teacher professional renewal is presented in Figure 1, with ratings for collaborative sharing at the school level illustrative of Factor 2 in Figure 2 and the third factor of applicability of the professional learning activity to teachers' work with students in Figure 3. The mean values for Professional Renewal in Figure 1 is 3.15, for Collegiality in Figure 2 is 3.00 and Applicability 3.44 respectively. In each figure the frequency

of teachers' responses is shown on the vertical axis, while the ratings from 1 strongly disagree to 4 *strongly agree* are presented in the horizontal axis.

Table 3. Factor analysis of teacher perceptions of professional learning activity

No.	Item	Loading	Mean
Factor 1: Teacher professional renewal (Eigen 7.2, 38% of variance)			
16	I learned new and different ideas from the PD	0.80	3.07
13	Knowledge gained from the PD will improve my teaching skills	0.73	3.10
19	I look forward to trying out new things in my teaching	0.72	3.23
4	The PD increased my knowledge of what can be done in the classroom	0.71	3.11
2	The PD will improve student learning opportunities in the classroom	0.68	3.13
21	The PD provided me with an opportunity to focus on improving student learning outcomes	0.67	3.19
6	The PD renewed my enthusiasm for teaching	0.66	2.92
15	The PD encouraged teachers to share what they had learned with their colleagues	0.63	2.94
3	The PD encouraged me to reflect on aspects of my teaching	0.60	3.37
20	I plan to use the knowledge gained from the PD in my work with students	0.59	3.26
7	The PD gave me some useful ideas of how to improve student outcomes	0.57	3.14
1	The PD updated my professional knowledge	0.51	3.30
Factor 2 School level collegiality (Eigen 1.5, 8% of variance)			
18	Adequate support is available to teachers at my school to share information gained from PD	0.82	3.09
8	Teachers in my school share ideas, knowledge and skills gained from attendance at PD	0.82	2.90
Factor 3 Applicability of the PD (Eigen 1.3, 7% of variance)			
17	I think the ideas presented in the PD will be too difficult to put into practice (R)	0.62	3.14
10	The PD was a waste of teacher time (R)	0.60	3.58
14	I did not find the PD useful (R)	0.54	3.66
5	Information presented in the PD was directly relevant to teaching and learning in my school	0.52	3.31
11	Information presented in the PD was directly applicable to teachers' work in schools	0.51	3.31

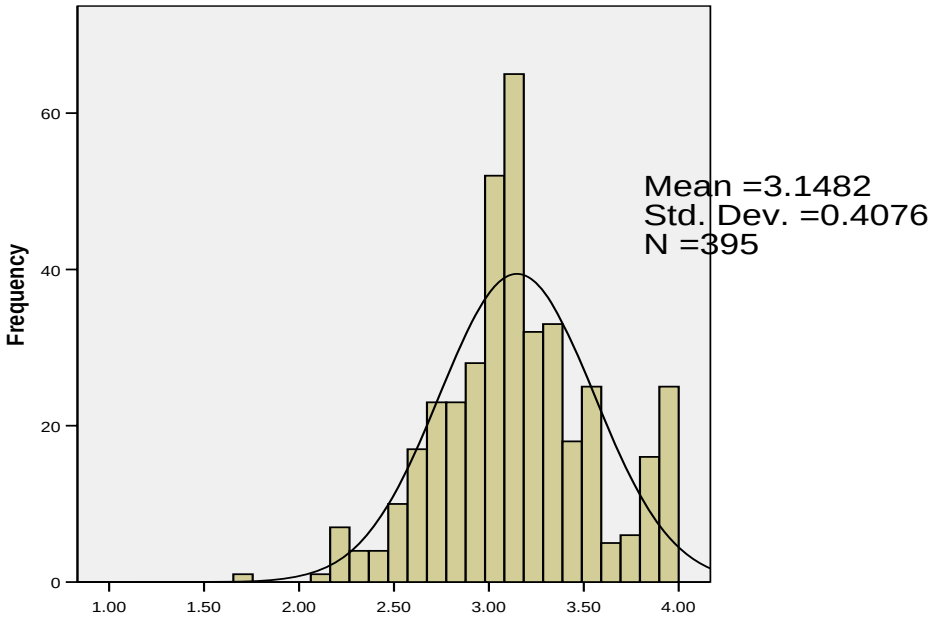

Figure 1. Factor 1: Teacher professional renewal

These three factors were then used to explore relationships between teacher age, gender, school type (primary or secondary school), type (curriculum, topic or ICT based activity) and duration (seminar, workshop or course) of the professional learning activity that the teachers had undertaken through one way analysis of variance (ANOVA). Teacher age and teacher gender did not relate significantly to any of the three target measures. Similarly, no significant differences were found between primary and secondary teachers. However, it was found that ratings on the Professional Renewal factor were significantly higher in the case of teachers who had experienced the longer courses, $F(2,393) = 32.21$, $p < 0.01$, and also in the case of teachers who

undertaken PD in the area of ICT, F (2,393) = 19.94, p <.01. Applicability ratings were also significantly higher when teachers had experienced the longer term courses, F (2, 392) = 4.69, p = 0.01. In essence, teachers rated their experiences as providing professional renewal more highly if they undertook an ICT professional learning activity(60 people, mean of 3.41 out of 4), or if they undertook an experience of longer duration (84 people, mean of 3.44). It should be noted that all the ICT experiences took place within longer courses. However, the 24 teachers who had undertaken longer courses within the curriculum domain also clearly rated their experience as professionally renewing (mean of 3.52).

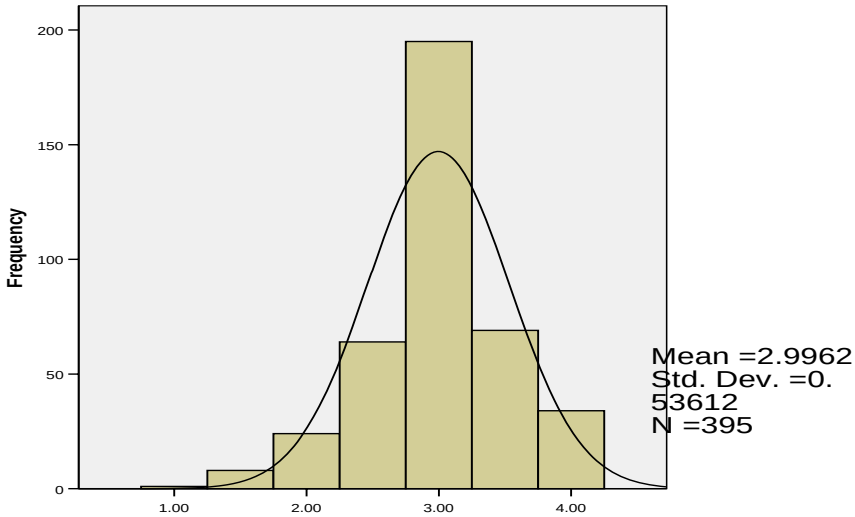

Figure 2. Factor 2: School level collegiality

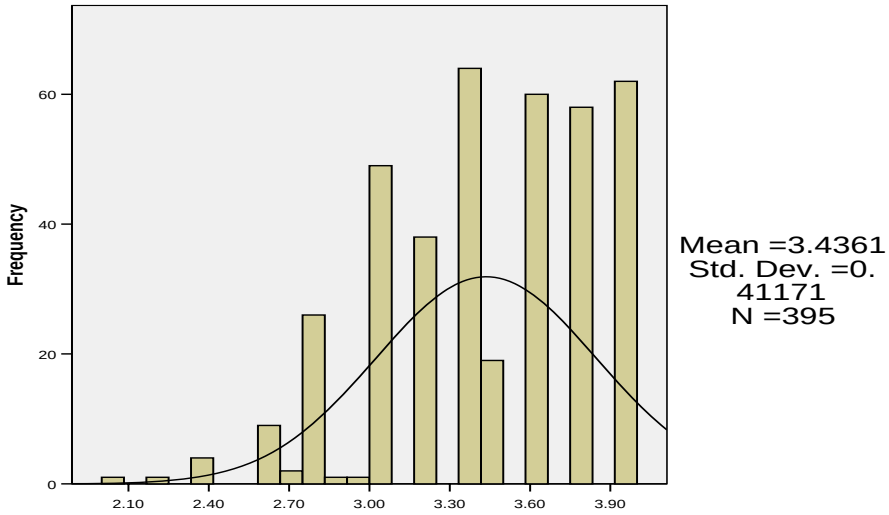

Figure 3. Factor 3: Applicability of the professional learning

DISCUSSION

Improvements in teacher quality and student learning have been linked in several studies (Meiers & Ingvarson, 2005), with teacher PD identified as the single most important means by which the quality of teaching and thence learning outcomes for students can be enhanced (Masters, 2003). The need for substantial PD for teachers is recognised widely and valued (OECD, 2004), but previous studies have indicated that there are often considerable gaps between optimal conditions for professional learning indicated by research evidence and those that are actually provided (Ingvarson et al., 2005). The present study lends supportive evidence to the commonly and widely agreed characteristics of effective PD for teachers (CERI, 1998; Wilson & Berne, 1999). The TPLP (Yates & Harris, 2003) survey administered to teachers in this study was based on the five of the seven PD effectiveness principles espoused by CERI (1998). Factor analyses of the TPLP

indicated that the majority of the items loaded into three separate factors of teacher renewal, school based collegiality and applicability to teachers' work, with the three factors related to the combination of Principles 1 and 2, Principle 3 and Principle 4 respectively. CERI Principle 7 was also affirmed as the results from this survey show that the longer duration of the PD programmes undertaken by teachers was a significant factor in their perception of their renewal and applicable of the PD activities to their work with students. Extended PD programmes are considered to not only offer teachers increased opportunities to acquire new knowledge and skills but also give them time to actively reflect on their practices (Meiers & Ingvarson, 2005). A recent synthesis of PD research relating to standards based reform in the USA has specified extended time as the crucial element in determining positive relationships between teacher PD and pedagogy (Snow-Renner & Lauer, 2006). While the current study focussed on teacher professional learning which is just the first link in the chain for the enactment of changes in teachers' pedagogical knowledge and practice and subsequent improvement in student learning outcomes (Ingvarson et al., 2005), the need for the content of the PD to have a specific focus rather than more general PD activities also identified by Snow-Renner & Lauer (2006) is affirmed in the survey results, with teachers rating their experiences of ICT and curriculum based activities as contributing significantly to their professional renewal.

To be effective, the professional learning activities must not only encourage teachers to be reflective but also require them to communicate openly with one another about pedagogical issues (Grodsky & Gamoran, 2003). CERI principle 2 highlights the importance of teachers sharing what they have learned from their professional learning activity with one another (Grodsky & Gamoran, 2003). While school level collegiality did emerge as a factor in this study, it was not significantly related to either the type or duration of the PD activity that teachers undertook. However, it must be borne in mind that opportunities for sharing with colleagues at the school level may not have been feasible as most of the PD activities available to teachers were not school based. Furthermore, in many situations teachers undertook the professional learning in their own time or at their own expense.

The present study focussed on teacher self-report data collected immediately after professional learning activities had concluded. Mayer (1999) has asserted that a certain level of confidence can be placed in surveys that rely on teachers' reports about their practice, a finding verified with Australian teachers by Ingvarson et al., (2005) who consider that most teachers are remarkably frank and unbiased in their assessment of professional learning programmes. As the survey was administered immediately following the PD activities it was not possible to ascertain the extent to which the professional learning activities undertaken would have an effect on student learning outcomes, although previous studies do indicate that this is the case (McRae et al., 2000; Skilbeck & Connell, 2003; Ingvarson et al., 2005). Guskey (1995) suggests that changes in teaching practices must precede changes in teacher attitudes, so although the teachers reported their intention to put the new ideas into practice whether they did so remains unknown. Furthermore, the question of the cumulative effects of professional learning on teacher renewal and quality has not been addressed in this study or in other studies to date. This is an important consideration as it is not known how long the effects of professional learning endure or indeed what motivates some teachers rather than others to undertake professional learning. Certainly the reasons why teachers chose to participate in the PD activities were not addressed in this study. The necessity of a continuum of lifelong learning for teacher renewal advocated by governments around the world (OECD, 2004) is as yet untested.

Teacher renewal through high quality PD activities is clearly an issue that is central to Australia's future as a knowledge nation (Department of Education, Training and Youth Affairs, 2000) as it is many other countries (Borko, 2004; OECD, 2004). While research reviewed by CERI (1998) has indicated a coherent set of principles which are associated with effective professional learning for teachers, the current episodic and disjointed nature of professional learning offered to Australia's teachers means that much more research is needed, particularly from the viewpoint of the teachers

who often undertake the professional learning on their own initiative, out of school hours and at their own expense.

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