

## EFFECTIVE CONTINUING PROFESSIONAL DEVELOPMENT FOR TEACHERS

### EXECUTIVE SUMMARY

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In studies of education, international comparisons are a popular way of trying to identify common features of an activity that can pave the way for improvements in teaching and learning. In the field of continuing professional development (CPD) for teachers, international comparisons are, unfortunately, not very helpful in identifying the features of effective CPD for two reasons. Firstly, teacher CPD is part of the teaching and learning environment in each country and these environments can vary widely, even between countries with similar outcomes for student attainment. Secondly, governments rarely state requirements for the form and content of teacher CPD, leading to variability in the quality of provision. The net result is a blurred and incomplete picture of what effective CPD looks like.

There are, however, a number of independent studies and reviews of teacher CPD from around the world which, when brought together, show surprising agreement on the features of effective CPD. The advantage of independent studies is that they tend to be well-designed and are more likely to possess statistical robustness and focus on measureable outcomes. Six features of effective CPD for teachers were identified from a sample of such studies. Effective CPD for teachers needs to: be based on the identified learning needs of both students and teachers; be sustained; be subject specific; be based in the classroom and classroom practice; be collaborative, so that reflective practice is encouraged; and, make use of external expertise. When present, these features provide the foundations for CPD that challenges teachers' current personal teaching theories and provides opportunities for modelling and practising new teaching methods in the classroom. This leads to permanent changes in teaching practices. Such learning activities are iterative, not linear, in nature and thus require CPD that is planned over the long-term.

School managements and funding agencies require that CPD be evaluated to justify decisions. There are a number of outcomes that may be used to measure the effectiveness of CPD. These include changes in: teachers' content knowledge and pedagogical knowledge; teachers' self-efficacy in teaching their subject; the frequency of specific behaviours in the classroom and in teaching and learning activities; and, students' attainment outcomes. This last measure is probably the most important means of evaluating the effectiveness of CPD. It is, however, the most difficult in terms of demonstrating a causal link back to a particular CPD intervention. CPD that starts by identifying learners' needs through formal and informal assessment and is based in classroom practice is most likely to demonstrate improvements in students' attainment.

Two other factors were identified that indirectly impact on the effectiveness of teacher CPD. Firstly, schools need organisational structures and managements that encourage and facilitate on-going professional learning, rather than focusing on monitoring and regulation. Secondly, an appropriate funding regime for CPD is required. There is a variety of funding policies around the world, ranging from all funding being provided by the state to most teachers being expected to self-fund, and from a needs-based approach to competitive tendering. However, there is insufficient evidence on which to make a judgement as to the type of funding that works best. Most of the studies considered here were well-funded by charitable foundations or as pilot

schemes by national or local government. These sources of funding are not sustainable over the long-term.

## **CONTINUING PROFESSIONAL DEVELOPMENT FOR TEACHERS**

Increasing attention is being paid to the professional development of teachers as they are seen as having the greatest influence on student outcomes (Barber & Mourshed, 2007). The Organisation for Economic Co-operation and Development (OECD) has stated that ‘at the level of the education system, professional development of teachers is a key policy lever’ (OECD, 2005). This attention is part of the on-going professionalisation of teaching.

In the UK, the passing of the Teaching and Higher Education Act of 1998 accelerated the push to move teaching from an occupation to a profession (Villegas-Reimers, 2003, p. 33). The Act established the General Teaching Councils (GTCs) for England, Wales and Northern Ireland<sup>1</sup>, to regulate teaching, and required all pre-service and in-service teachers to register with their GTC. (Legislation currently passing through Parliament is intended to abolish the GTC for England by 31 March 2012 (*The future of the GTC*, 2011).) Each GTC has its own code of conduct for the teaching profession based on between four and ten core principles. There is one principle in each code that deals with the need for teachers to maintain their professional knowledge, for example:

*“Take responsibility for maintaining the quality of their teaching practice. . . . actively seek out opportunities to develop their knowledge, understanding, skills and practice.”* Taken from the GTC for England’s Code of Conduct and Practice for Registered Teachers (2009, pp. 7 & 9 )

Teachers in other countries are also experiencing a move to increasing professionalisation of their vocation. At one end of the spectrum, the Singapore government provides highly structured and sophisticated routes into, and progression through, teaching. At the other end, the South African government is looking to move their ‘barefoot teachers’ who have a vocation but no qualifications or training into new teacher training courses, and to fast track their professional learning (Villegas-Reimers, 2003, p. 19).

## **INTERNATIONAL COMPARISONS**

The Teaching and Learning International Survey (TALIS) asked teachers in 23 countries (18 of which were within the EU and aligned countries) what sort of CPD they participated in and what they thought of it (OECD, 2008, 2009). The countries were selected either for their high attainment scores in the OECD’s Program for International Student Assessment (PISA) studies or because they made the most rapid improvement in their scores. A review of teacher and teaching effectiveness, undertaken as part of TALIS, underlined the importance of teaching quality in improving student attainment. A secondary analysis based on the TALIS data identified three characteristics of teachers and teaching that could and should be addressed through CPD for teachers (p. 190, Hendriks, Luyten, Scheerens, Slegers, & Steen, 2010). These were (i) pedagogical content knowledge; (ii) choice of teaching strategy, either direct or constructivist or, ideally, an appropriate blend of the two; and, (iii) teachers’ self-efficacy, as

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<sup>1</sup> Scotland’s General Teaching Council was established in 1965.

most studies found a positive relationship between teachers' beliefs about their efficacy and student achievement. The OECD also recommends that teachers undertake professional development to enable them to deal with the demands arising from the increasingly diverse backgrounds of their students in terms of attainment, and social and ethnic backgrounds (Field, Kuczera, & Pont, 2007).

International comparisons based on snapshot surveys are unhelpful in identifying the characteristics of effective teacher CPD for two reasons. Firstly, the teaching and learning environments vary widely (Charlton, 2011). Taking South Korea and Finland as examples, both are in the top seven highest ranked countries in the OECD's PISA studies (OECD, 2010), yet their education philosophies are almost polar opposites, with Finland favouring a formative approach to teaching and South Korea focusing on students' summative performance. Students in Finland take their first high-stakes test, for selection to university, at the age of 18. In contrast, South Korean students are tested throughout their educational careers to the point where "hyper-competition" causes immense psychological distress to students, parents and teachers (Charlton, 2011). In terms of professional development for teachers, according to a recent survey conducted in 11 countries, South Korea has the lowest percentages (under 30%) of teachers whose development is either fully funded by government sources or who can undertake development in school time (OECD, 2011). In stark contrast, teachers' professional development in Finland is almost fully funded by the government and is incorporated into the school timetable.

Secondly, whilst there may be a requirement for a minimum number of hours of CPD, government policy rarely stipulates the form and content of CPD (Egan & Simmonds, 2002). For example, until 2006 teachers in Hong Kong were required by the government to undertake 150 hours of CPD over three years (Pattie, 2009). Whilst the number of hours looks to be generous, it disguises the stress placed on teachers who had to participate in CPD outside of school hours in order to maintain their employment status, as well as their professional learning, in an environment of financial cuts and decreasing school roles leading to school closures. In contrast, the General Teaching Council for Scotland requires 35 hours per year of CPD and so far there have been no reported problems of teachers managing this load in addition to teaching hours. However, there is some question as to the robustness of the monitoring of the requirement (Kennedy, Christie, Fraser, Reid, McKinney, Welsh, Wilson, & Morwenna, 2008)

In his brief review of international professional development for teachers, Hardy (2008) dichotomises the influences brought to bear as 'democratic' and 'managerial'. The democratic influence is teacher-led and is sustained by learning communities that exchange knowledge and expertise. The managerial influence produces a top-down standardised delivery of what is the en vogue policy-driven 'best practice':

*"...[professional development] content and processes have also been influenced by a general endorsement within the educational community of more engaged and sustained teacher learning that is collaborative, ongoing, site-specific and focused upon inquiry into student learning....This new consensus opposes the individual, decontextualised workshop-approach, typically adopted in schooling settings. Rather than the "program" approach of "how-tos" and "shoulds", delivered by experts after school or on weekends, teachers are encouraged to develop habits of critical inquiry and deeper understanding about how their students learn." (Hardy, 2008, p. 279)*

## **ADULT LEARNING**

Most research into CPD for teachers carries the recommendation that the CPD be designed according to the principles of adult learning, andragogy, without stating what these principles are. Based in the USA and an advocate of andragogy, Knowles (1968, cited in Rachal, 2002) listed a set of characteristics that differentiated adult learners from non-adult learners:

1. Self-directed or autonomous: an adult is capable of identifying their learning needs, tracking down resources and setting goals.
2. Possesses a set of life experiences and knowledge that can be used to direct and inform learning.
3. Has a readiness to learn that is usually directed towards developing within the roles they take in society.
4. Has an orientation towards learning that is relevant to a particular problem.
5. The motivation to learn is more intrinsic than extrinsic.

Andragogy finds its antithesis in enforced learning that the learner has not helped to shape, and in the use of 'pencil and paper' tests to assess achievement. Some accommodations to the theory are necessary in the policy-driven environments of schools, where managerialism requires that the effectiveness of CPD be quantified and measured to justify decisions.

## **THE CHARACTERISTICS OF EFFECTIVE TEACHER CPD**

Various reviews have examined a number of studies of teacher CPD in different countries (McCormick, Banks, Morgan, Opfer, Pedder, Storey, & Wolfenden, 2008; OECD, 2009; Timperley, Wilson, Barrar, & Fung, 2007; Villegas-Reimers, 2003). Others have focused on local studies (for example, Bolam & Weindling (2006), in England). All of the reviews synthesised their selected studies to identify the characteristics of effective CPD. However, they used a range of measures by which to judge effectiveness:

- Teachers' content knowledge and pedagogical content knowledge
- Teachers' self-efficacy in the teaching of their subject
- The classroom environment (teacher behaviours, student behaviours, teacher-student interactions, teaching and learning activities)
- Student attainment outcomes

Of note is Timperley et al.'s (2007) review which selected 97 studies that demonstrated positive outcomes for students (social, affective and academic). They considered these studies in the light of 84 characteristics that described the professional learning environments. The other reviews took a similar approach to synthesising fewer studies, but used a wider range of measures of effectiveness. All reviewers acknowledge the difficulty in establishing cause and effect between CPD and changes in the attainment outcomes of students.

There was surprising agreement between the reviews on the characteristics of effective CPD. The six major characteristics are that CPD be driven by identified learning needs; sustained; subject specific; based in the classroom; collaborative; and that it make use of external expertise. Each of these characteristics is discussed.

## 1. Driven by identified learning needs

Any type of CPD should meet a need that has been identified beforehand. This assists in setting objectives against which the CPD can be evaluated. Based on their review of studies of CPD that produced positive student outcomes, (Timperley, Parr, & Bertanees, 2009) recommend that the students' learning needs be identified first. This involves an audit along the lines of what students currently know and how this is measured, followed by a statement of what the students need to know and a strategy for moving from the current state of students' knowledge to the desired state. Once the students' learning needs are identified, a similar audit of their teachers' learning needs can take place, including a reflection on current classroom practice and teaching theories.

The motivation for an audit of learning needs may come from national government, local government, or school or classroom levels within the educational system (Timperley et al., 2009). For example, the CPD described in Box 1 was undertaken after an analysis of students' outcomes on science tests indicated underperformance. Often, one of the first steps in the identification of learning needs is teaching teachers about assessment, both formal and informal, and how to use the results to focus on areas requiring improvement (Timperley et al., 2007).

Involving teachers in the identification of learning needs acknowledges them as adult learners possessing self-direction, experience of their classroom environments, and readiness to learn the teaching practices that can help them solve problems in their classrooms. Research indicates that the more involved an adult learner is with defining their learning, the more likely they are to engage with it and report a successful outcome (Bolam & Weindling, 2006).

## 2. Sustained

In their review of CPD that led to improved student outcomes, Timperley et al. (2009) found the CPD needed to last for at least a year. However, a long duration, in itself, was not sufficient to produce positive student outcomes; how the time was utilised was just as important. Time was needed to challenge teachers' theories of practice, to apply new practices in their classrooms and to measure the effects (if any) of the new teaching practices. The examples of teacher CPD in Boxes 1, 2 and 3 have durations of between two and seven years.

A programme designed to correct primary teachers' misunderstandings and misconceptions in science found statistically significant improvements in understanding after just six months (Jarvis & Pell, 2004). Improvements in the teachers' understanding appeared to improve their students' understanding as well. However, this programme of CPD comprised ten days of intensive learning followed by a comprehensive schedule of lesson observations and tutorials. Its main objective was improving teachers' content knowledge and whilst gains in pedagogical content knowledge undoubtedly flowed from this, it is more difficult to modify this domain of knowledge. The project was also well funded and resourced by a charitable organisation with a strong interest in science education. Such factors may be difficult to replicate on a larger scale and for long periods of time.

### **BOX 1 Needs identification to initiate the design of sustained CPD and professional learning in Nevada, USA**

From an analysis of students' scores on standardised tests, the Clark County School District in Nevada found almost two-thirds of their schools were

performing below the national average in science. There was also a decline in science knowledge between the ages of 13 and 15 years. Teaching science as three separate subjects without helping students to make connections between the concepts was identified as a cause of the under-performance. So the school district collaborated with a regional professional development group and multiple partners from the local university to design a programme of CPD to prepare teachers to teach integrated science to 14 year olds. The 3-year CPD programme, Proficiency and Success in Science (PASS), started in 2005.

The programme comprised an annual 2-week summer institute and coursework during the school year. The summer institutes, offered to approximately 50 teachers, focused on increasing teachers' content knowledge and the coursework aimed to develop teaching and learning practices appropriate to teaching integrated science. Ideally, teachers would participate in PASS for the full 3 years. The majority did not, but many did benefit from different parts of the programme. In particular, the participating teachers created a supportive professional learning community.

An evaluation of the effectiveness of the CPD programme demonstrated

- statistically significant increases with moderate effect sizes in the content knowledge of teachers who took part in the CPD in all 3 years
- teachers' classroom behaviour showed more frequent use of student-centred teaching practices such as a science notebook as a learning scaffold, learning by inquiry and small group instruction
- after controlling for the ability of the students, there was no statistically significant improvement in test scores for science. However, looking at just those students whose teachers taught integrated science (n=288), the ones with teachers who also undertook the full CPD programme (n=10) outperformed other students.

Crippen, Biesinger and Ebert (2010)

### 3. Subject specific

Research shows that CPD is more likely to bring about improvements, particularly in teacher efficacy and pedagogical content knowledge, when it is subject specific (Bolam & Weindling, 2006; McCormick et al., 2008). Different subjects place different emphases on how to integrate pedagogical content knowledge, how to use assessment information and how students learn particular subjects. Mathematics, science and writing tend to emphasise content knowledge more than reading does (Timperley et al., 2007), for example. By taking this into account when designing CPD, it is more likely to be relevant to teachers and therefore more likely that the learning will be sustained after the CPD is completed.

The relevance of CPD to teachers is also enhanced by demonstrating or modelling how theory is translated into practice. Teaching the theory of pedagogy without demonstrating how it can be the basis for decision making in the classroom is unlikely to either engage teachers or lead to any meaningful changes in teaching practice.

#### 4. Based in the classroom

Basing CPD in what goes on in the classroom presents teachers with opportunities to consider their existing theories of teaching practice and how to change these in the light of new learning about their subject and its pedagogy. The examples of CPD given in Boxes 1 and 3 were reliant on teachers being taught theory and then applying it in their classrooms. On-going support offered by tutors and facilitators (as well as their own colleagues) provided opportunities for reflection over a period of time. For successful results, teacher CPD is iterative, not linear (Timperley et al., 2007) with cycles of learning theory, applying the theory to actual teaching practice, reflection and embedding of the theory and modifying the new practices. Without these iterations and the time for them, CPD is unlikely to result in changes to teaching practice that have a positive impact and that are sustainable.

##### **BOX 2 London Challenge: collaborative professional learning and external expertise**

London Challenge was an improvement programme started in 2003 to close the attainment gap between London and the rest of England, by focusing on outcomes in low-performing secondary schools in London. In 2008, it was extended to primary schools in the capital and nationally. The Challenges came to an end in March 2011. In London, the programme succeeded in raising the attainment of students and schools. Before the Challenge began, London had the lowest proportion of pupils achieving the benchmark of five GCSEs at grades A\* to C out of England's nine regions (Stewart, 2011). By 2010, it was at the top of the table after showing a faster rate of improvement than nationally. In Ofsted's most recent inspection, 30% of London's secondary schools were judged to be outstanding (*London Challenge*, 2010). This compares to 17% in the rest of England. Only 2.4% of schools were judged to be inadequate compared with 4.1% in the rest of England.

London Challenge advisers, who are independent, experienced education experts, identify learning needs within schools and negotiate local support for those that are under-performing. The advisers are leaders from outstanding schools who work with their own school's staff to help other schools in their area. Support comes in the form of lesson observations and feedback to teachers, demonstration lessons by expert teachers, and in-service training sessions to groups of staff. Of London's 377 secondary schools, 74 are supporting schools and 212 are receiving support. Advisers set up learning networks which enable the identification and sharing of resources. Using the concept of a professional learning community has refocused teachers' commitment on to the learning of all London children, not just the children in their school.

#### 5. Collaborative

One of the strongest findings from the research is that teacher CPD needs to be collaborative in nature. Teaching is a reflective practice that improves with discussions which challenge personal theories of practice in safe, non-judgemental environments. This can be achieved by a number of means, such as:

- Lesson observations with feedback provided by colleagues in the same and other schools.

- Participation in networks of professional learning or projects aimed at professional development through the improvement of students' outcomes (Cordingley, Bell, Thomason, & Firth, 2005). This also includes networking through subject associations.
- The encouragement of research and investigation throughout a school or department (GTC for England, 2006).
- Coaching and mentoring.

A recent survey of teachers' opinions on, and experiences of, CPD in England found that teachers expressed a desire for networking activities and regretted the fact that local education authorities no longer took on the function of organising such networks (Gray, 2005). Networking with other teachers overcame issues of poor quality in the provision of CPD by commercial organisations. Often such CPD did not use the principles of andragogy and tended to be of the top-down, transmissive type of instruction. Teachers dubbed these 'CPD cowboys' (Gray, 2005).

Whilst networks have their benefits in terms of exchanging ideas about teaching practices, they can also act as a means of reinforcing the status quo. This is where the use of external experts can be useful.

## 6. Uses external expertise

All of the studies of CPD selected for review by Timperley et al. (2007) received input from external experts. Generally, the experts provided up to date knowledge of pedagogy and on-going support in transferring pedagogical knowledge into the classroom. They were also in a position to challenge current orthodoxies in the schools they worked with (Doolittle, Sudeck, & Rattigan, 2008) and act as an independent 'honest broker'. It is noticeable that the examples of CPD in Boxes 1, 2 and 3 all made use of external experts.

### **BOX 3 Sustained and sustainable CPD in New Zealand**

The New Zealand government funded a 2-year project to design and implement a CPD programme to improve the teaching of reading and writing in primary schools. This was part of an intervention that was particularly aimed at those students (approximately 20%) whose attainment was two or more years behind their peers. 218 schools and 2440 teachers from schools ranging in size from 30 to over 700 were involved in two cohorts.

Overall, the project was very successful; a judgement based on the results of standardised tests taken before and after the start of the CPD programme by students aged 7 to 13 years<sup>2</sup>. They showed students making between twice and four times the expected national gains.

Responsibility for the CPD programme was contracted to an external organisation with expertise in the area. It employed facilitators who regularly visited between six and eight schools each to engage staff in collaborative inquiry processes and to increase their pedagogical content knowledge in reading and writing. The programme was flexible to allow facilitators to take account of local circumstances. However, all programmes began by identifying

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<sup>2</sup> Effect sizes of the gains (Timperley et al., 2009) made by students were 1.28 and 1.05 for writing for the first and second cohorts, respectively, and 0.87 and 0.96 for reading. For the lowest 20% of students, the equivalent effect sizes were 2.05 and 2.53 for writing and 1.97 and 1.79 for reading.



the learning needs of students and then teachers. Observing lessons allowed facilitators to challenge teachers' theories of practice. In one case study school, the teachers were able to change their teaching practice so that it focused more on the teaching of writing rather than motivating students to write.

Timperley et al. (2009)

## OTHER FACTORS MAKING CPD EFFECTIVE

The reviews identified two other factors that can make for effective CPD: organisational structures and funding.

### Effective organisational structures for effective CPD

*"I think some schools are wonderful learning communities where everybody is learning from each other, both formally and informally, at all levels, **where there are structures to support professional learning** [my emphasis]."* Member of the National CPD Team in Scotland (Kennedy et al., 2008).

At the school level, CPD needs to be planned and organised. Without this, teachers are effectively left to organise their own professional learning, which will only work for those who are highly self-directed. The individual reflective practitioner may also find that their learning goals are misaligned with those of their colleagues, their schools, education policy or best practice. The evaluation of the PASS project (see Box 2) did not find any significant gains in students' attainment for science perhaps because too few teachers took part in the CPD **and** taught the integrated science course. Even where collaboration and learning communities are encouraged within subjects or topics, teachers may experience resistance to developing new practices in their classrooms when the school environment is not open to innovation. Hong Kong teachers who took part in professional learning with the aim of developing coping strategies for their students and themselves in a fast changing world reported satisfaction with the course and the changes it enabled them to make in their behaviour (Pattie, 2009). However, some of these teachers also reported difficulty in applying the new concepts to their classrooms in part due to resistance from their colleagues.

The use of annual performance reviews may be a blunt tool in implementing effective CPD as their purposes tend to be more regulatory and seeking to fulfil management accountability functions (Hardy, 2008; Kennedy et al., 2008).

*"... PRD [annual Professional Review and Development interview] can be seen as either a structural tool to promote compliance and quality assurance, or as a mechanism to support teacher agency, that is that structure can support agency."* (Kennedy et al., 2008, p. 413)

Based on their case study of education in Finland, Hargreaves, Halász and Pont (p. 33, 2007) recommend that school leadership 'move beyond administrative and social cooperation to encompass improvements of pedagogical practice'.

## **Funding for effective CPD**

Funding of CPD is varied. In Australia, schools submit proposals for CPD funding in a competitive tendering process (Hardy, 2008). The proposals are judged against a set of criteria that include whether the proposal encourages collaborative learning in more than one school and uses external expertise. The competitive tendering process itself militates against collaborative learning practices as it sets one school against another in the hunt for funding. It also raises questions about the equity of access to funding for CPD given the varying resources available to schools to draft proposals. Once secured, the CPD funding must be used within a specified time, which may discourage long-term programmes of CPD, and is subject to a 15% cap on spending on cover. In contrast, support for schools in the London Challenge was funded by the Department for Education based upon each school's needs, as identified by the advisers (see Box 2). A large part of the funding was spent on supply cover for teachers who were engaged in training programmes (*London Challenge*, 2010).

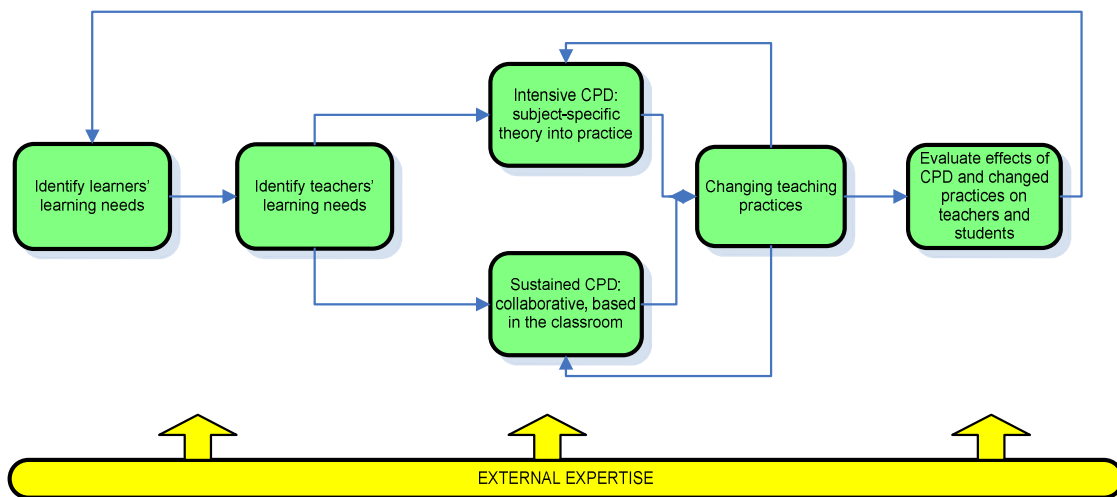
## **TEACHER CPD: THE UNKNOWNNS**

There are a number of unknowns as to what makes for effective CPD (Pedder, Storey, & Opfer, 2008). Research into the following topics is recommended:

- How are CPD purchasing decisions by schools affected by government policy and funding structures?
- Is it possible for CPD to perform more than one function? For example, to improve student attainment outcomes and act as a means of career progression.
- Most studies into the effectiveness of teacher CPD focus on science, English/literacy, maths/numeracy as these are seen as important to economic activity. In a climate of restricted budgets, can what is known about CPD in these subjects be transferred to cross-curricular learning and teaching and to those subjects that are not prioritised as a result of international comparison studies or economic factors?

## **CONCLUSIONS**

The effectiveness of CPD for teachers tends to be measured by changes in teachers' subject content knowledge, pedagogical content knowledge, self-efficacy in teaching and in the types and frequency of behaviours, and teaching and learning activities in the classroom. It is difficult to establish cause and effect between teachers taking part in CPD and improvements in the attainment of their students, therefore student outcomes are rarely used as a measure of effectiveness. Nonetheless, a number of reviews on the topic of teacher CPD agree to a large extent on what constitute the six characteristics of effective CPD for teachers. Effective CPD is: based on identified learning needs for both students and teachers; sustained; subject specific; based in the classroom; and collaborative (particularly in establishing professional learning communities); and, uses external expertise. Effective CPD for teachers is iterative in nature to allow time for personal teaching theories to be challenged and teaching practices to be changed through participation in professional learning communities (see Figure 1).



**Figure 1:** The cycle of effective teacher CPD

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