Improving Teaching Through Coaching, Mentoring And Feedback: A Review Of Literature

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This article investigates the literature on mentoring and coaching and the embeddedness of these in wider fields which are referred as 'professional development' and 'teacher learning'. It concentrates on education but also considers selected work from other professions to provide a comparative perspective on the education material. There are clearly identifiable similarities across all of the literature reviewed, despite different lexicons. The review also identifies what appears to be recurrent theoretical and research issues and difficulties in the mentoring and coaching and professional development literatures. These have prima facie relevance for the teacher professional development projects and activities currently being underway by education jurisdictions across the globe. They are summarised at the end of the article.

KEYWORDS: Teaching, Coaching, Mentoring, Feedback

INTRODUCTION

In each layer of contemporary education, governments, industry spokes people, parent groups, commentators and students call for accountability and transparency. In school education, the major focus is on teachers and the improvement of the quality of teaching. Schools globally are awash with requirements imposed by testing as an audit and quality mechanism, and the language of quality assurance where the metrics are increasingly public knowledge. To work within this framework, every school staff member

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requires the capacity to collect data, analyse it and make decisions that support and enhance student learning outcomes (Lynch, 2012; Fullan, 2007). At the same time, the teaching profession has a common aspiration to improve the quality of student learning outcomes through teaching. Being able to do this is an important part of a teacher's professional identity. These pressures weigh heavily not just on teachers, but on school heads and middle management as well who have the added responsibility to lead a systematic approach to the requirements in ways that improve effective teaching (Smith & Lynch, 2010). The history of teacher education has a lot to do with the present search for ways to build effective schools and to improve the performance of teaching. Following much of the American agenda of 'objective' methods created by people such as Thorndike, the psychological approach became the accepted standard for educational research in Australia by the 1960s (Lagemann, 1996). It was supplemented by the efficiency movement in educational management and by a division of labour that separated teachers from university researchers (Darling-Hammond, 1997).

Two effects followed. First, the objective methods precisely produced knowledge that is abstract, without context and focused on practice and that cannot be integrated into classrooms. Teachers, then, tend to ignore 'research' because it is difficult to apply to their daily work. Second, two professional 'communities' or 'tribes' were produced, namely university researchers and school practitioners (Smith, 2000; Menter, 2011) which distinguish 'headwork' from 'manual labour'. Even today, the legacy of university researchers inventing knowledge for teachers to apply has currency and continues to affect the ways in which teaching in teacher education degrees is done and accreditation processes are conceived and administered (Smith & Lynch, 2010). The socio-cultural demands on schooling exacerbate the impact of the legacy and complicate the need for change.

Such dilemmas and solutions are hardly restricted to education (Smith & Lynch, 2010). For instance, Paquette (2012) proposes that museum operations are very different from what they were only a decade or so ago. They are now considered as agents of social inclusion and social change, suggesting a change in organizational culture in which museums must change their focus to the social agenda of museums and to social engagement in the museums. The parallel with teaching, nursing and many other professions is apparent. All of them face pressures to 'change', generated by a common background of social, cultural, economic and political movement, generically described as 'globalisation'. What emerges from these over-arching pressures are serious organisational questions that are often unrecognised in their entirety by observers and commentators. Whether it is schools, universities, businesses or museums, these institutions have socialized and created leaders and other staff

in different educational experiences and values, and for decades used leadership selection criteria that have an uneasy fit with current conditions. With new broad social and political demands, the search is on for ways to influence and change organizational culture where leaders normally champion and use orthodox, received cultural mores. There is a strengthening trend to think of the workforce more as an important source of competitive advantage requiring new leadership skills rather than dealing with other traditional leadership roles, such as financial resources, technology, or economies of scale (Pfeffer, 1994 in Kroth & Keeler, 2009). In addition and more importantly, if these new policy goals and mandates are to be established as the new orthodoxy, a new workforce and leadership is required. In the Education sector, the challenge for schools, heads and teachers then is how to do it (Sachs & Parsell, 2014; Lynch, 2012).

In recent years, mentoring has become a feature of the business world, where it is used in the induction of new staff into the culture of the organization, to improve communication between different levels of management, and to encourage access for traditionally excluded groups from senior management positions. The interest in other professions such as Medicine, Nursing, and Education has followed.

MENTORING AND COACHING

In this section of the review, we canvas arguments across the literature that capture the core issues and challenges in which the terms 'mentoring' and 'coaching' are embedded. Mentoring has ancient origins, but modern day mentoring has roots in the European apprenticeship system, when the apprentice learnt skills from the master craftsman (Clutterbuck, 1985). This legacy leads to many images of 'mentoring' that reflect the difficulty of exact definition (see Carter, 2013; DfES, 2005). While coaching in an organizational sense has traditionally been viewed as a way to correct poor performance and to link individual effectiveness with organizational performance (Ellinger et al., 2003), the distinction between coaching and mentoring has not been clear.

The categorisation difficulty in this field is captured by Hamlin, Ellinger, and Beattie (2008) who conducted a comprehensive literature review and identified 37 coaching definitions. They created four broad variants labelled "coaching," "executive coaching," "business coaching," and "life coaching." The key issue is that the coaching process of providing help to individuals, groups, and organizations through some form of 'facilitation activity or intervention' was found to be common to all four variants (Beattie et al., 2014, 186). Thus, all variants were based on:

> … the explicit and implicit intention of helping individuals to improve their performance in various domains, and to enhance their personal

effectiveness, personal development, and personal growth (Hamlin et al., 2008, 291).

Organizations and the literature use the terms mentoring and coaching interchangeably. More specifically, coaching and formal mentoring are similar in nature but different in name (Joo, Sushko & McLean, 2012 p. 30). I follow this advice except where either mentoring or coaching is the core of the discussion. In addition, the construct teacher 'Professional Development' (PD) can be rendered as 'Continuing Professional Development' (CPD), teacher learning, school improvement and so on. In each of them, mentoring and coaching play a key role in their implementation. I refer to both PD and CPD as generic terms in what follows.

At the outset, it is important to note that there are only a few studies on managerial coaching (Gilley et al. 2010; Park 2007) and fewer empirical studies about the outcomes of managerial coaching and mentoring that have definitive results (Beattie et al. 2014, p.188). In particular, there is a dearth of studies about the direct and indirect associations between managerial coaching and mentoring where employee responses have been studied. In addition, Paustian-Underdahl et al. (2013) indicate, "little is known about the factors that may play a role in supervisors' supportiveness" (p. 290) and the characteristics of highly supportive supervisors. Nevertheless, the literature does corroborate common themes for effective coaching and mentoring behaviours in schools including creating a learning environment, caring and supporting staff, providing feedback, communicating, and providing resources including other people. These are reflected in the DfES (2005) statement that provides the following definitions for an education context.

> *"Mentoring is a structured, sustained process for supporting professional learners through significant career transitions;*
> *Specialist Coaching is a structured, sustained process for enabling the development of a specific aspect of a professional learner's practice;*
> *Collaborative (Co-) Coaching is a structured, sustained process between two or more professional learners to enable them to embed new knowledge and skills from specialist sources in day-to-day practice."*

Hamlin et al. (2006, p. 326) conclude, "Truly effective managers and managerial leaders are those who embed effective coaching into the heart of their management practice". Cordingly and Buckler (2012, 221) make the point that for those studies showing a "positive impact on both teacher and learner outcomes" of mentoring and coaching, the most important messages are the processes involved: collaboration, sustained, embedded in real-life learning contexts, and supported by specialists. Normally, 'mentoring' refers to a one-to-one relationship in an organization where a senior experienced person or specialist offers guidance, help, support and advice to facilitate the learning or

development of a junior or less experienced other. Curiously, based on management research in nursing, education, and management, Kroth and Keeler (2009) argue that contemporary managerial strategies and models do not adequately address the importance of 'caring' between managers and employees. Paquette (2012) identifies three literatures in the mentoring field. In the sociological literature, mentoring is an act of social reproduction as a mentor, based on knowledge, experience, or symbolic capital, transmits information, strategies, social capital, and prestige that are necessary for institutional change and career progression. Those mentored in such an arrangement become the legitimate heirs to the mentor, a view that flts an interpretation of mentoring as a conservative practice reminiscent of medieval apprenticeship, reproducing and communicating the 'tricks of the trade'. There is a 100-year old literature about schooling as the social reproduction of the class structure and the baleful effects of professional cultures that stifle innovation. In Paquette's (2012, 209) view, "most of the literature—even the most supportive of mentoring—conveys the idea that mentoring is equivalent to normalization and social reproduction or learning as an uncritical engagement with a body of professional or organizational knowledge". The mentoring concept must overcome this legacy in practice if it is have any impact on the constraints and restraints that it purports to transform.

The managerial literature, emphasizes formal mentoring and the mutual beneflts of relationships for both organisations and the mentored. The idea that employees and their manager work for the organisation and therefore coaching and mentoring are tools to assist this process, is hardly questioned. The third approach then is that of an emergent practice in which a new professional seeks or receives "advice and guidance" for his or her career from a senior colleague through a 'durable relationship' (Paquette, 2012, 207). Summarising Paquette's survey, the literature conveys the idea that mentoring is an experience that involves a single mentor, but that this characteristic is an artefact of the kinds of research that have been done rather then a conceptual or theoretical position. The second issue is that the literature emphasizes the processes of normalization. "This characteristic is quite salient in the sociological works; it is the desired outcome of the managerial stream of the literature and is a core component of the vocational one—especially from the psycho-social point of view" (Paquette, 2012, 209). Paquette concludes that the potential of mentoring for creativity and potential innovation is underestimated so that the idea is rarely associated with organizational and institutional change. This is an important cue for those in education where school reform and more effective teaching to produce improved student academic outcomes are the main game.

The term 'mentor' usually invokes the idea of a formal relationship between an experienced worker and a less experienced one, but the literature shows that

in today's work climate involving the need for changed work patterns and cohorts of people, traditional hierarchal mentoring relationships are ineffective. Different forms of mentoring have evolved to fit the circumstances: including peer mentoring, co-mentoring, developmental alliances, situational or spot mentoring that is short term and goal specific, 'mentoring up' in which senior employees are mentored by junior employees, team and group mentoring, and e-mentoring" (Mavrinac, 2005).

However well intentioned, attempts to restrict the scope and range of mentoring and coaching are, it seems, doomed. Kram (1985) and Roche (1979) describe both informal and formal modes of mentoring. Caruso's (1989) study in a business setting showed that professional and emotional support came from a number of sources rather than one formal mentor. In this way, mentoring can be a relationship between colleagues, where their respective status is equal and communication is two-way. Reflecting this reality, Kram and Isabella (1985) identify a continuum of peer relationships: Information Peer, Collegial Peer, and Special Peer. Kram (1985) identifies two main areas of support provided by the mentoring relationship. Career development includes sponsorship, visibility, exposure, coaching, protection, and challenging assignments while the psychosocial includes role-modelling, friendship, counselling, acceptance and confirmation. While categories such as 'coaching' are identified as discrete entities, the term 'mentoring' fuses them into a single superordinate concept.

These two areas of support, mentoring and coaching, are fundamental in school settings where professional development is inextricably linked with the personal history of the individual teachers involved. Each teacher has a personal angle on 'teaching' and teaching style, determined by accumulated knowledge and ideas, perceptions of the profession, and era in which they undertook teacher education (Lynch & Smith, 2012). Bringing this enormous array of differences and similarities to the table for disciplined dialogue is a priority for school leaders where the psychosocial functions present special challenges. As an illustration, St-Jean and Audet (2013) report that an intervention style that combines a maieutic approach (aspect of the Socratic method that induces a respondent to formulate latent concepts through a dialectic or logical sequence of questions) with mentor involvement enabled the mentor to play a more decisive role with the mentee, indicating that mentors need to be able to vary their approach. Mentoring and coaching are a very diverse church indeed. Nevertheless, the mentoring role is fraught not just for school leaders. Spaten and Flensborg's (2013) study of 15 middle managers trained to coach 75 employees found that the manager as coach has to be sensitive and empathetic in building the coaching relationship and should draw clear boundaries between their role as leader with a power relationship and supportive coach. Seibert (2013) in a study of 11 companies

and 5,000 employees reports that where employees believed that their managers provided ongoing coaching and feedback to help them succeed, 93% reported a willingness to put in additional effort when needed, compared to only 33% of those who reported poor coaching and feedback. If this study is representative, it suggests that mentoring and coaching skills are a core capability for leaders and that even then, the processes can go wrong.

There is a clear trend in the literature away from 'management' emphases towards what might be called a 'Human Relations' approach. It has emerged as an important area for leadership where immediate managers or coaches are in a pivotal position to optimize people 'investments' (Schiemann, 2011). In this approach, human capital is central to achieving the mission and goals of the organization, another way of saying that employees matter and that the organisation and management have a responsibility to optimise both training and work conditions. In turn, dealing with 'alignment', 'capabilities', and 'engagement' of people, are central to the optimization of human capital investments and maximising overall organisational performance (Schiemann, 2011). While education staff may baulk at the lexicon of such work, there are many instructive concepts in this literature for both the application of mentoring and coaching processes and for asking pertinent research questions about PD. Pausing for a moment, nowhere does the gravity of PD weigh more heavily on leadership, management and staff than in education institutions. As the pressures to improve teaching and student outcomes increase, school heads are daily faced with issues such as how teachers and middle managers can be most effective at work, how their commitment to common goals determined both beyond the school and within can be encouraged and sustained. To participate in disciplined dialogue (Swaffield & Dempster, 2009), mentoring becomes an essential technique as it offers an approach to both the work place individual and the personal side of human development in so far as individuals can be helped to explore their potential. Hence, mentoring is about the whole of an individual's relationship to work and the ability to thrive within it rather than the transmission of a limited set of skills, important as these may be in some circumstances. The Human Relations approach, perhaps stripped of some its imposing terminology that may well threaten the sensibilities of educators, offers a resource to perceptive education leaders.

To illustrate the point, here are some examples. In a business environment, coaching recipients report satisfaction with the experience for developing intrapersonal and interpersonal areas, especially self-efficacy (Theeboom, Beersma, Bianca, van Vianen & Annelies, 2014). Susing and Cavanagh (2013) point out that career developmental stages as well as personality traits have clear but distinct empirical links to work-based performance. What is more, the mentoring concept and process appears to be transferable to other contexts. In their study of workplace stress, Yang, Liu-Qin, Xu, Xian, Allen, Tammy, Shi,

Kan, Zhang, Xichao and Lou, Zhongyan (2011) found that Chinese business employees understood mentoring relationships in a way similar to Western employees, indicating that the concept is valid in a Confucian culture. Similarly, in his review of eight Education studies from 1997 to 2007 selected from the ERIC and Education Complete databases, Hsiu-Lien Lu (2010) found that peer coaching appears to possess unique advantages and have much value for preservice teacher education, while Smith and Ingersoll, (2004), Portner (2008), Stanulis and Floden, (2009) conclude that mentoring constitutes a vital tool in providing support for new teachers during induction to the profession. On their part, Cordingly and Buckler (2012, p. 221) state that CPD is most effective when it is "collaborative, sustained, embedded in real-life learning contexts, and supported by specialists" and that mentoring and coaching provide "tailor-made in-school strategies". The mentoring concept appears robust and, for all intents and purposes, is universal in PD settings.

FROM MANAGEMENT TO STAFF CAPACITY

Traditionally, as Leithwood, Harris and Hopkins (2008) point out, school leaders have been reasonably successful at influencing working conditions and fostering motivation and commitment amongst school staff, but under the pressures of the demands noted earlier, they have had a relatively weak influence on building staff capacity: arguably the 'old' agenda in today's circumstances. Following Swaffield and MacBeath's (2009) notion that leadership is an activity rather than a position, the school head's role in professional development of all staff implies a strong organisational component, a strong influence over priorities within a school's professional learning program for teachers and middle managers and the ability to make things happen (Timperley, 2009). As indicated earlier, the 'how' part of the job has become a major determinant of the head's success or failure and now encompasses managerial, Human Relations and 'business' insights into how to lead a contemporary education organisation in both the public and non-government sectors. School heads in particular also need to monitor progress and adjust processes in order to maintain continuing forward momentum, implying a systematic use of data collection and interpretation as part of the core work schedule. In short, a school leader has a pivotal responsibility for providing the optimal conditions so that time is created for critical professional friendships to develop, and for the mentorship and coaching of staff to occur.

Swaffield and Dempster's (2009) concept of 'disciplined dialogue' is helpful for understanding the school leader's relationships with middle managers and in turn their relationship with teachers. Fowler (2012) emphasises the point that disciplined dialogue is based on real data that are critical to understanding teaching, students and their learning rather than hearsay, anecdote or rumour. An important process to achieve these outcomes is referred to as 'mentoring'. A necessary capability for school leaders in the future is the capacity to improve

the effectiveness of instructional practice (Fowler, 2012), an issue to which this review will return later. Once this is accepted then it follows that school leaders need, as a central tenet of their professional repertoire, the knowledge and skill base to make decisions about the impact of teaching on student learning outcomes. Moreover, in order to do this, school leaders need to focus much of their effort on the core business of teaching and learning (Robinson, Hohepa & Lloyd 2010) so that middle managers and teachers also have a heightened awareness of the importance of inquiring into the impact of their teaching on student academic outcomes. When teachers develop their own inquiry skills and can apply them, it is more likely that there will be sustained improvement in teaching effectivness (BERA, 2013; Timperley, Wilson, Barrar & Fung 2009). Thus, as MacBeath and Dempster (2009) point out, the teaching role is delineated as delivering a curriculum, but with systematic inquiry into curriculum and the art and science of teaching. For contemporary teachers, these concepts constitute professional knowledge, and leadership that leads to a successful amalgam of these at the teacher level is all about capacity building (Smith & Lynch, 2010).

Kram (1985), in a study of ten teachers, found that the role of the head teacher, the role of colleagues and the ethos of the school were significant in providing teaching support. Drawing on Kram's work, the ethos of the school depends on the vision of the head teacher and the commitment of colleagues. The head teacher is presented by

Kram's data as a figurehead and, at the same time, the founder or the vision behind the culture of the school. This is important as Carter's (2013) research showed. Elements of peer mentoring could be identified in a culture where staff were committed to the vision and had a fundamental belief in what they were doing. The individuals were able to identify strongly with the group and with the collective beliefs and along with colleagues, reflect upon their experiences. The review will deal with the 'reflection' construct later.

Several characteristics appear vital for a successful school head mentor. They include taking a personal interest in the professional well-being of staff, modelling and fostering high standards and expectations, behaviours in their head teachers which are regarded as inspiring such as ability to motivate, knowledge of educational theory and practice, personality and leadership qualities, judgment and trust. In short, "a mentor relationship is a two-way street. To make it work, you have to bring something to the party" (Blank, 2011). To reinforce Blank's categories, Ellinger et al. (2003) created coaching behaviour measures that identified eight themes: (1) personalizing learning situations, (2) broadening employees' perspectives-- getting them to see things differently (3) question framing to encourage employees to think through issues (4) stepping into other's shoes to shift perspectives (5) providing

feedback to employees, (6) soliciting feedback from employees (7) setting and communicating expectations and (8) being a resource. I will extend and elaborate what is required in such a wide-ranging agenda later in the review.

Several aspects of what is required in principle appear regularly in the literature. They include the influence of colleagues as peers who provide a range of specific supportive techniques. Crucially, their commitment to the culture of the school is a core ingredient for a successful mentoring program over time, and all mentoring programs are long, rather than short-term projects. Appropriate culture initiates the continuing self-motivation and support that enables the mentored to grow in confidence and take control of their own development.

Confirming other studies cited here, confidence, self-esteem, self-efficacy are all factors that emerge in the mentoring process and contribute to personal and professional development. Gong, Chen and Yang (2014) showed that mentoring mechanisms like these have a sustained influence on personal learning and career outcomes. Their study of 246 business context employees indicated that mentoring mediates the effect between personal learning and career outcomes. Nevertheless, in another business environment study, Kim, Egan, Kim, and Kim (2013: 325) report a study of direct and indirect effects of managerial coaching behaviour on employee role clarity, work attitudes, and performance. They claim that it is one of the first studies to provide evidence for the influence of managerial coaching behaviour on employee role cognition, work attitudes, and performance. They also point out that there is no commonly acknowledged theory or conceptual model for managerial coaching outcomes and, to date, they were unable to identify any study of managerial coaching in Asian cultural contexts.

By way of summary, it is worth quoting in full from the study by Ingvarson et al. (2005, p.15). This snippet contains elements of all of the features of PD mentioned so far and puts the emphasis on what the teachers want and do with the resources they receive.

> … the most effective programs, in terms of reported impact, had profiles consistent with research on effective professional development … They were rated highly by teachers across all five opportunity to learn measures in the conceptual model … They provided opportunities for teachers to focus on what students were to learn and how to deal with the problems students may have in learning that subject matter. They focused on research-based knowledge about student learning of content. They included opportunities for teachers to examine student work collaboratively and in relation to standards for what the students in question should know and be able to do. They led teachers to actively reflect on their

practice and compare it with high standards for professional practice. They engaged them in identifying what they needed to learn, and in planning the learning experiences that would help them meet those needs. They provided time for teachers to test new teaching methods and to receive follow-up support and coaching in their classrooms as they faced problems of implementing changes.

THE ISSUES FOR EDUCATION

In this section, we present a number of matters and issues that affect the conceptualisation, understanding, use and research about mentoring and coaching in Education. There is no particular order in the presentation although the first matter, 'teacher professional learning' is clearly of prime importance. It encapsulates all of the other issues mentioned and discussed in this review and provides a rough, indicative framework for gaining a 'bird's-eye' view of schools undertaking fundamental -dare I say radical -changes.

Issue #1: Changing Teacher Behaviour

There are three systems involved in teacher professional learning: the individual teacher, the school, and the activities (Opfer & Pedder, 2011). The individual teacher system encompasses their prior experiences, their orientation to, and beliefs about, learning, their prior knowledge, and how these are enacted in their classroom practice. School-level systems involve the contexts of the school that support teaching and learning, the collective orientations and beliefs about learning, the collective practices or norms of practice that exist in the school, and the collective capacity to realize shared learning goals (Lynch & Smith, 2011). Finally, because the focus is teacher professional learning, the systems of learning activities, tasks, and practices in which teachers take part are included. Opfer and Pedder's (2011: p. 389) work has important implications. They restate the findings of previous research that indicate: how and what a teacher learns is strongly influenced by orientation to learning, that the perceptions and beliefs of teachers are the most significant predictors of change, and that these are not easily altered. They emphasise that that of the studies specifically aimed at changing teacher orientations to learning with course work and learning activities, few have been successful. Moreover, teachers are more likely to embrace evidence supporting their existing orientations than evidence that contradicts them (Chinn & Brewer, 1993; Tillema, 2000).

This is a highly relevant issue for mentoring and coaching because teacher education strategies have typically encouraged the development of an individualized personal teaching approach by student teachers as the legitimate role of teacher education programs, and such an orientation is expected in practising teachers. High value is placed on teachers explicitly

discussing, elaborating and constructing their own beliefs (Tillema, 2000: p. 576). Several difficulties follow.

First, it is difficult, if not impossible to link pre-existent lay theories and student teachers beliefs to contemporary knowledge on teaching without creating such "great diversity, incoherence, and sometimes even conflict, between the knowledge bases" that presenting an accepted knowledge base to student teachers is fraught (Tillema, 2000, 576). Second, even personal belief systems about teaching are severely challenged and overruled by the preconditions set by practice. One might also expect that as 'experience' in such conditions increases, belief systems are reinforced and sustained. Tillema's (2000: 576) third point is that in the face of practice, student teachers often feel unable to reconcile their own beliefs with what is experienced, and that experience 'puts them in a position in which they feel inadequately prepared and ill-equipped to do what is expected of them'. In short, there are serious difficulties that block a teacher's capacity to construct their own reflective belief system at the beginning of a career and in the on-going work situation. Amongst his conclusions, Tillema (2000: 587-588) reports:

> The meaningfulness of reflection depends upon the prevalent performance repertoire, not just upon the beliefs which previously existed. This underscores the primacy of practice over beliefs, and reflection as adding to the experiences already acquired in practice, thus establishing a conceptual congruence between behaviour and thinking.

Tillema's study particularly challenges the notion of encouraging pre- and post-initial teacher education participants to 'reflect' before practice, one of the dominant strategies in teacher education, because it is prone to the creation of incongruity between beliefs and performance.

Issue #2: Creation and Sharing of Knowledge

A major issue in the teacher professional development literature is what is understood by the 'creation and sharing of knowledge' and how it can be achieved and researched. In addition, as I have already indicated, there is a general work-based learning literature beyond Education that is concerned with this issue, such as with farmers adopting new crops, doctors introducing new prescribing practices, or women learning about and adopting birth control practices (Valente, 1995). These cases are considered to exemplify a diffusion process based on how individuals influence each other. But in general terms, work-based learning approaches are missing in the Education literature. At the time of writing, there is no adequate theory that explains the process of creating and sharing teacher knowledge, or agreed model for undertaking mentoring and coaching, yet these matters are at the core of the mentoring and coaching debate across professions and industries.

The most productive condition for informal workplace learning is a teacher culture that encourages and values collaborative learning according to Avalos (2012). However, as McCormick (2010: p. 399) points out, there is a problem with the theoretical basis of CPD literature in general. McCormick (2010) cites Wilson and Berne (1999) to criticise CPD that is based on untested beliefs, such as the importance of teacher 'collaboration', without adequate empirical evidence for these beliefs. (Lawless & Pellegrino 2007, p. 576) suggest that this is the case.

> Although the number of professional development opportunities for teachers has increased, our understanding about what constitutes quality professional development, what teachers learn from it, or its impact on student outcomes has not substantially increased (since 1999).

Opfer and Pedder (2011: p. 376) repeat the criticism that the "process–product logic has dominated the literature on teacher professional learning and that this has limited explanatory ability".

The point is of considerable importance for the following reasons put forward by McCormick (2010: p. 400). First, the mechanisms involving teachers that generate improved student learning need to be demonstrated. Thus, being able to provide evidence that teacher 'collaboration' for example improves student learning does not necessarily then reveal the mechanisms by which such improvement takes place. In the Singapore context, Pak Tee Ng (2012) concludes his study of mentoring and coaching by saying that "there is a paucity of empirical research around M/C, in particular the impact of particular M/C schemes within different contexts and the experiences of the participants in such schemes". For example, teacher collaboration in professional learning communities (see Stoll et al. 2006 for a review of this literature), are based on a theoretical background of collective learning by teachers 'learning' in a 'community of learners' (Stoll et al. 2006, 225). However, the theoretical model fails to provide evidence for the empirical link between individual and group learning (Stoll et al. 2006, 235). McCormick (2010: 400) notes that is major problem with the conceptualization of teacher learning.

Second, McCormick (2010: p. 401) shows that constructs such as 'communities of practice' and 'networks' carry difficult theoretical baggage. In the case of 'communities of practice', the term conceals the fact that when teachers are learning new practices the mentors are rarely 'experts' in that location and situation and, it could be argued, teachers themselves are the 'experts'.

> To conceive of, say, those who know how to enact 'learn how to learn' practices in the classroom as a separate 'community of practice', into which other teachers are enculturated, is to create entities that would be hard to identify! (McCormick, 2010, 401)

Moreover, the terms 'networks' and 'communities' are often used inter-changeably when they are different concepts in social theory. It may not seem like an important issue, but it surfaces repeatedly in the education literature which tends to talk of PD relationships as 'practices' when a sociocultural view sees them as a 'transaction' taking place. The difficulty is that 'practice', says McCormick (2010: p. 404), is "reified by one teacher and conveyed to another, and the other teacher must 'convert' that reification into practice through participation in practice". Thus, 'practices' or 'social transactions' need a substantive theory for understanding the processes that underpin the practices or transactions in social networks, to reveal the underlying conceptualisation that these approaches to 'network' and 'community' entail.

The difficulty occurs both during knowledge 'creation' and 'sharing'. It follows then that to understand how teachers create and share knowledge; it is necessary to have a substantive theory of 'teacher learning' and the mechanisms through which this creation and sharing that leads to 'learning' takes place. Opfler and Pedder (2011, 394) reinforce this sentiment in their proposal that ultimately, "we need more studies that investigate how the generative mechanisms of teacher learning appear in different combinations and sequences, with different weights, in different but concrete situations". An important insight here is that the theorisation these authors have in mind goes way beyond views of 'professionalism' and 'professional autonomy' that are the most common forms of Education theorising. It requires systematic work about what happens as a consequence of PD processes.

Moreover, Opfler and Pedder (2011) conclude that there are generalizations about the way professional learning activities relate to teacher learning that are valid across different teachers and school contexts. If this is the case then an adequate 'explanatory theory of teacher learning' should be able to distinguish unique, school or teacher dependent aspects of professional learning from those that are generalizable to other teachers and contexts of practice, thus placing prime importance on the conceptualization of PD. This point will arise in a later section of the review. Borko (2004, 3) recognizes the difficulty and attempts to get around the blockages to understanding using a situative perspective. This construct refers to physical and social contexts in which an activity takes place as an integral part of the activity; and that the activity is an integral part of the learning that takes place within it. Accordingly, how a person learns a particular set of knowledge and skills, and the situation in which a person learns, become a fundamental part of what is learned. (Putnam & Borko, 2000, p. 5). Borko (2004) proposes that a situative approach is necessary to explore what she describes as "the most serious unsolved problem for policy and practice in American education today", namely the inadequacy of conventional teacher professional development in everyday life and its theoretical underpinnings. Like Borko, McCormick (2010: p. 405) cites Little's

(1990) work to underline the value of providing a close-grained account of the moral and intellectual dispositions of teachers in their relations with one another, and an account of the actual talk among teachers, the choices they make, and the way in which individual actions follow from the deliberations of the group.

Third, Bausmith and Barry (2011) argue that teacher communities tend to ignore issues related to teaching and learning subject matter even though the research literature has demonstrated the importance of a focus on subject matter learning in programs of teacher professional development (e.g. Fishman, Marx, Best, & Tal, 2003; Kennedy, 1998).

Fourth, in studies of other professions, it has been established that there are influences beyond the collaborating (teacher) group or network. It is worth considering the influences that have an impact on the adoption of new practices in a school, and the extent to which colleagues and friends in other schools or even the Internet might influence teachers.

Fifth, there is repetition in the Education literature about the role of teacher collaboration or mentoring and coaching that are already empirically well established as effective forms of PD. Notwithstanding, 'effectiveness' is rarely related to student outcomes (Lawless & Pellegrino, 2007).

- 'Effectiveness' is a tricky concept in the PD field because of the number of variables involved and the value-loading that it carries in Education, especially in teaching. McCormick (2011: 399-400) notes that 'effectiveness' could refer to either student or teacher outcomes, and 'experience' can mean a lot of things, as reflected in much of the literature. He proposes the following list as a way of keeping track of the effectiveness of PD.

- There are three targets for impact: students, teachers and school and a target for each needs to be specified

- Specific reference needs to be made about the type of PD such as 'attending external conferences and courses' and the nature of provision, for example, 'coaching and mentoring', 'shadowing and peer support', 'lesson observations' and 'discussions with colleagues to reflect on working practices'

- The direct relevance of PD to the participants should be specified, with clearly identified intended outcomes such as elements of PD activity that are in line with good teaching and learning principles, taking account of previous knowledge and expertise, modelling effective teaching and learning strategies, and impact evaluation

- The context conditions for effective PD in the local situation should be

identified, to ensure effectiveness. For example, whether or not the culture of the school is conducive to teacher learning.

Opfer and Pedder (2011: 389) suggest that even when changes are detected in teacher behaviour as a result of course work or short-term professional development activities such as more and better field and classroom experiences; opportunities for reflection; opportunities for understanding oneself in a secure environment under challenging or novel circumstances; and applied knowledge about teaching and learning, they may be change measure artefacts rather than 'real' changes in teacher orientation. They go to say that:

> Despite the close identification of these elements with effective teacher learning and changes in teacher orientation, few … studies empirically connected the specific learning activities to specific changes in teacher belief. Fewer still go further to connect the learning activity to change in learning orientation and change in subsequent teaching practice (Opfer & Pedder, 2011: 390).

Nevertheless, Kim, Egan, Kim and Kim (2013: p. 325), in a study of direct and indirect effects of managerial coaching behaviour on employee role clarity, work attitudes, and performance, report that managerial coaching behaviour influenced employee role cognition, work attitudes, and performance. They claim that it is one of the first studies to provide evidence for such influence and also point out that there is no commonly acknowledged theory or conceptual model for managerial coaching outcomes. Nor were they able to identify any study of managerial coaching in Asian cultural contexts.

Issue # 3: An Alternative, Indicative Model

Schiemann (2014) provides a different perspective on the same deep issues for transforming an organisation with the concept of 'People Equity', defined as "the collective state of Alignment, Capabilities, and Engagement (or ACE for short)". The People Equity framework was developed in the global business environment but appears eminently adaptable as a coherent model for schools by combining important individual and organisational outcomes, such as quality, productivity, student retention, and organizational processes and policies that drive the optimum use of staff talent. Stoll et al. (2006: 221) also propose that:

> International evidence suggests that educational reform's progress depends on teachers' individual and collective capacity and its link with school wide capacity for promoting pupils' learning. Building capacity is therefore critical.

By 'talent' Schiemann refers to the collective knowledge, skills, abilities, experiences, values, habits and behaviours of all labour that is brought to bear on the organization's mission. His concern is to think about "what capability is

added to or subtracted from the organization as a result of acquiring or losing a person", the value of talent as a resource where the returns for concentrating on it include benefits beyond financial ones alone. How well talent is leveraged, he argues, provides a competitive advantage a situation well documented in the PISA comparisons and debates about optimum ways for teachers to ply their capacities (PISA.).

Schiemann's (2014) People Equity model, liberally modified for schools, is as follows:

i. Alignment' is the degree to which everyone in the school is rowing synchronously in the same direction. Strong alignment is indicated by behaviours that are aligned with goals, students and the school ethos. Horizontal alignment, units working synchronously together across structural boundaries, is also quite important.

ii. 'Capabilities' are defined with the major stakeholders in mind. It is the extent to which 'competencies' (e.g. knowledge, skills), information, and resources are sufficient to meet internal or external stakeholder expectations. At the micro-level, students are the main stakeholders, while at the macro-level, a school is accountable to community and the nation. This focus is especially pertinent in a world where a focus on the students for example slides to a concern about the providers of the service (e.g. Policy and Procedures for the Accreditation of Initial Teacher Education Programs in NSW). The importance is underlined by Nuthall (2004: 285) "although there are problems with the assessment of student learning, there is no substitute for going directly to the student when assessing the effectiveness of the teacher". Researchers frequently use student interviews using structured protocols, grades assigned by experienced teachers to various dimensions in portfolios of student work, standardized test scores and multiple forms of assessment simultaneously to increase the richness of evidence and the conclusions that can be drawn from it (Fallon, 2006).

iii. 'Engagement' is comprised of three factors: satisfaction, commitment, and advocacy. The former two factors are central engagement constructs in the teacher or head roles, while advocacy includes extra-role behaviour actions, beyond the minimal requirements of the role. These could include innovative behaviours, extra time in role activities, or going out of the way to recommend the organization to potential employees and students or others. The concept of engagement then includes both the affective states that create the condition for the discretionary effort of satisfaction and commitment and a willingness to take actions on behalf of the organization or others in the organization. For example:

… when basic satisfaction drivers—job security, compensation and

benefits, fairness—dropped in difficult economic conditions, engagement plummeted (Seibert & Schiemann, 2010). In contrast, when satisfaction and commitment are high, organizations that can also achieve high advocacy—such as endorsing the organization publicly—have the highest engagement (Schiemann, 2014, 283).

The pressure on schools to improve student outcomes places stress on individuals who must become aligned and engaged with the new mission and the culture. The intra-teacher profession about NAPLAN and PISA for instance reveals that there are significant issues for some teachers and their representative organisations to 'fit' with the emergent school goals, values, or culture or there is failure on the part of some individuals to become engaged in the organization. It means that means that a school has people in place who really don't want to be there and it is the lot of the school leadership to optimize a school's talent by focusing it, developing the right capabilities, and creating engagement (Schiemann, Seibert & Morgan, 2013).

It is important to see the link here with the mentorship literature already cited. It is not just about alignment issues such as polices, procedures and goals or capabilities such as training, but must include engagement aspects to connect leaders to everyone else in the organisation regardless of role and status. Wanting to be part of a team, while being recognized for one's individuality, a welcoming environment, with clear, mutually agreed-upon expectations between teachers and the head and peers foster recognition, growth opportunities, safety and security, fair treatment, and open communication. Such processes (Onboarding) are crafted early in a new relationship.

Extrapolating from Schiemann (2014), mentoring is an intricate set of behaviours, requiring exceptional skills in evaluating a teacher's performance, correcting deviations from the schools mission etc. and providing feedback, can often compromise engagement. Again, when engagement is muted, motivation to hone skills may drop or increase a person's determination to go elsewhere. Similarly, capabilities can be sacrificed or assumed under pressure to create alignment as leaders focus on goals and gaps without sufficient emphasis on coaching staff so that there is minimal development. As Schiemann (2014) asks, "If a leader doesn't have people who are aligned with the goals and vision, have effective competencies and are engaged in the tasks at hand, isn't something wrongflIs that leader the right person for a job that requires talent optimizationfl" A summary of Schiemann's model appears in Figure 1.

Nuthall (2004) refers to the 'pragmatic validity' of research. Translating his concept to teacher PD and learning, the issue is how PD is related to teacher

learning in a way that is comprehensible and practically useful for the teachers concerned and their school heads (Nutthall, 2004). Nuthall (2004) argues that this approach entails three distinct but interacting layers: (a) the visible layer of head-managed activities; (b) the semi-visible layer of teacher-to-teacher culture, relationships, and interactions; and (c) the semi-visible layer of individual teacher behaviours. Drawing on this conceptualisation, the ways teachers behave and consequently experience PD activities are not simply a function of head or coach-managed activities, but also a function of the teachers' ongoing relationships with other teachers and their students and of their own beliefs and previous experiences.

Alignment	Capabilities	Engagement	Profile	
High	High	High	Optimized Talent	
Low	Low	High	Misguided Enthusiasm	
Low	High	High	Strategic Disconnect	
High	Low	High	Under Equipped	Sub-Optimization
High	High	Low	Disengaged	
High	Low	Low	Unable/Unwilling	
Low	High	Low	Wasted Talent	
Low	Low	Low	High Risk	

High   Low

Figure 1. Alignment, Capability and Engagement.

Summing up Nuthall's argument and applying it to teacher PD, the following issues assume high priority.

1. Independent in-depth assessment of what teachers learn. PD effectiveness can only be determined from independent information from individual teachers. Every study must include an assessment of what individual teachers know and can do before and what they know and can do after PD instruction. The assessment needs to be independent of head evaluations. Neither heads nor students are good at evaluating teacher learning (Purser, Knight, & Bedenbaugh, 1990). Observations are preferable, because understanding learning is not possible unless you understand both the content and complexity of changes in what teachers know and believe.

2. Complete, continuous data on individual teacher experience. Research on PD impact requires direct systematic continuous observation (preferably recording) supplemented with interviews in order to capture, as far as possible, the ways individual teachers experience their PD activities and the content messages embedded in them.

3. Complete, continuous data on PD activities. Recordings of PD activities and teacher experiences must be continuous over the period in which the learning is expected to occur. PD effects are not stable over time and context, and both teaching and learning are continuous, cumulative processes. Recordings and observations need to be focused on individual teachers. Occasional observations or sampled observations do not provide the data needed to connect PD to the teaching process.

4. Analysis based on the continuous connections among PD activities, teacher experiences, and classroom learning processes. The data must be analysed in a way that sensibly connects the recordings of PD and teacher activities to the process of classroom learning. This means including recordings of the private and hidden social worlds of teachers, as well as the public whole staff environment. It also means a sequentially ordered analysis of the visible structure (Oser & Baeriswyl, 2001) that can be connected in real time to evidence (direct and indirect) of the changes taking place in the minds of the teachers.

5. Avoid the aggregation of data. Aggregation of data across teachers and across different PD outcomes must be carefully justified before it can be used. Individual teachers can have quite different experiences within the same PD, begin with quite different background knowledge, and achieve significantly different outcomes (Nuthall, 1999a). Aggregation by summing introduces unnecessary ambiguity and error, yet generalization across individual cases is the function and substance of theory building, the process discussed elsewhere in this review as a prime need in the teacher learning / PD field.

6. Explanatory theory must be directly and transparently connected to relevant evidence. We need to distinguish carefully between speculation and evidence-based theory. Many studies (like those in CPD, PD, teacher learning that lack so much critical intermediary data between the PD activities and individual teacher outcomes) can only produce speculation about the relationship between PD and teacher learning. Usable evidence-based theory needs to be built from the bottom up, from the details of individual teachers and specific PD activities, and requires much more detailed and precise data on what is happening in the PD program and in the minds of teachers.

Of these criteria, the most significant is the second, the need for continuous observational data on individual teacher experience. Interpreting and understanding individual behaviour and inferring underlying learning processes depends on knowing the full context in which an individual's behaviour occurs.

Issue # 4: Towards a Theoretical Synthesis of Leadership, Effective Pedagogy and Enhanced Student Academic Outcomes

Heibert et al (2002: 3) propose a challenging approach to moving teaching's knowledge base from researchers' knowledge of teaching to teachers' knowledge. The recent BERA (2014) reinforces this position in its advocacy of teachers as 'researchers'. Against the universally acknowledged background that teachers "rarely draw from a shared knowledge base to improve their practice" and do not "routinely locate and translate research-based knowledge to inform their efforts" (Heibert et al 2002, p. 3), their suggestions are highly relevant to the implementation of mentoring and coaching programs that aim to make an impact on student academic learning outcomes. To that end, their proposals are outlined before moving on. Heibert et al. (2002) begin by characterising teacher work as examining student work, developing performance assessments and standards-based report cards, jointly planning, teaching, and revising lessons, and exhibiting expertise in lesson presentations. While teachers traditionally have worked in isolation, they report favourably on in-school programs that bring colleagues together in active, collaborative work to improve practice. Nevertheless, as Heibert et al (2002, 3) remind us, an old problem is revealed in a new light as they:

> … rarely search the research archives to help them interpret their students' conceptions and misconceptions, plot their students' learning trajectories, or devise alternative teaching practices that are more effective in helping their students master the curriculum.

Tomlinson (2008: 522-523) provides insights here about the obvious dangers of narrow perspectives. Discussing the relationships between psychological theory and pedagogy, Tomlinson identifies "the unfortunate general educator tendency to think in terms just of overt teaching strategies and to ignore the psychological work they must achieve". He cites Chi and Ohlsson, (2005) to illustrate how a particular teaching strategy (having students self-explain a physics problem) because it forces them to articulate and often repair their mental models, shields the potential to do this by using another teaching strategy (peer tutoring) for the same effect. Again, Tomlinson (2008: 523) refers to selective applications of psychology for example:

> … a particular subject teaching community develops a relatively exclusive devotion to a particular psychological viewpoint as its 'silver bullet paradigm', as arguably happened with science education's attachment to individual constructivism in the 1980s (e.g. Driver, 1983).

One might generalise this remark far wider than science education in the

Australian Education context and include teacher education and policy development as well. Returning to Heibert et al., they refer to teacher's knowledge as "craft" knowledge characterized more by its "concreteness and contextual richness" than its generalizability and context independence. It is linked to practice because it is motivated by the problems of teaching and the fact that each new bit of knowledge is connected to the processes of teaching and learning that actually occur in classrooms. In short, practitioner knowledge is detailed, concrete, specific and integrated and organized around problems of practice. It constitutes a world of its own and it is this characteristic that makes bridging the gap between research knowledge and teachers' practice inherently difficult, if not intractable.

By labelling teacher knowledge in this way is hardly a criticism of its complexity and richness. On the contrary, the description is aimed at unlocking and revealing teacher knowledge to a wider audience than the individual 'gun' teacher or 'gifted' individual, to reveal the fullness of the accumulated wisdom of teaching profession's history. To unravel the difficulty and intractability of teacher knowledge, Heibert et al. (2002, 5ff) call on Popper's (1972) three worlds of knowledge, namely World 1, knowledge of physical and real-world objects and experiences; World 2, individuals' knowledge and skills; and World 3, shared ideas treatable as public objects that can be stored and accumulated. Their argument is that teachers interact with their students and the curriculum in World 1, they create knowledge for themselves in World 2, but World 3 is where the teaching profession's knowledge for teaching must be generated. In short,

> …teachers must operate in a system that allows them to treat ideas for teaching as objects that can be shared and examined publicly, that can be stored and accumulated and passed along to the next generation.

A collaborative environment in schools then becomes the sine qua non of professional development in Heibert et al.'s view, not because collaborations provide teachers with social support groups, but "because collaborations force their participants to make their knowledge public and understood by colleagues". Nonetheless, 'collaboration' alone is insufficient. Professional knowledge must also be public, created with the goal of making it shareable among teachers, open for discussion, verification, and refutation or modification. The lack of such qualities in relation to teacher/teaching knowledge is the trademark of an immature profession.

To this end, Heibert et al. (2002), take on one of the key elements that make bridging the gap between research knowledge and teachers' practice so difficult: the issue of representing knowledge for teaching through theories offering abstract knowledge that transcends particular classrooms and contexts and ensures that the knowledge rises above idiosyncratic technique

with examples. Such theories are in their view, a "hallmark of professional knowledge". In addition, such theories must offer examples, grounded in practice to reveal the meaning of verbal propositions of theories. This too is a fundamental point about collaborative work. Teachers can readily provide examples or their experiences and practice, but it is not obvious that they can transform their classroom-based knowledge into 'theories' of teaching.

Moreover, Heibert et al. (2002) propose, such useful theories are "teacher's hypotheses or predictions regarding the relationships between classroom practices and students' learning, along with explanations for observed connections". Again, it can be readily understood that collaborative work about 'teaching', founded on such principles, meet Bausmith and Barry's (2011) critique that the research on subject matter content and how students learn that content is not typically sought out by teachers.

To facilitate this, and to reduce the complexity of teaching, Heibert et al. (2002) nominate the lesson as the most theoretically heuristic and practically accessible unit of analysis and improvement that captures interaction among the features of teaching that give teaching its meaning and character. They also advocate that the quest for theory building about teaching would be enabled by a shared curriculum in contrast to teachers creating their own and pursing different curriculum goals.

Together, these features create the conditions for teachers or a school to develop and test hypotheses with local theories about the way in which particular lessons facilitate (and undermine) students' learning. Local knowledge as described here is almost always incomplete and "sometimes blind and insular" invoking concerns about accuracy, verifiability, and continuous improvement. They suggest storing such knowledge in a form that can be accessed and used by others, namely video copies of lessons that exemplify hypotheses and local theories. In this way, teachers can continually evaluate theories exemplified in real-world lessons in different contexts to create a quality control mechanism.

Finally, Heibert et al. (2002, 9) are unable to cite a single example in the USA where their prescriptions operate and I would hazard a guess that it is also the case in Australia. They analyse the historical roots of this issue and nominate a Japanese example in which:

Small groups of teachers meet regularly, once a week for several hours, to collaboratively plan, implement, evaluate, and revise lessons. Many groups focus on only a few lessons over the year with the aim of perfecting these. They begin the process of improving the targeted lessons by setting clear learning goals and then reading about what other teachers have done, what ideas are recommended by researchers and reformers, and what has been reported on students' learning of this topic. Often, they solicit university

researchers to serve as consultants to their group. Researchers add perspective to the group's deliberations, bring in the experiences of other groups they have worked with, and help locate research information that refines the group's problems and hypotheses.

There are echoes of the background to successful PISA results here (Pearson Foundation, 2013).

WHAT THE RESEARCH TELLS US

Rather than dwelling on the minutiae of the host of articles and books about 'mentoring' and 'coaching' in Education and most other industries, a decision was made to extract what appear to be the dominant ideas of the field, against the projects and activities ongoing in Australian schools and elsewhere. These ideas include the major critiques of existing work and proposals for the future.

First, 'mentoring' and 'coaching' are core elements of PD or 'teacher learning'. There is work to be done to clarify and make explicit the meaning of 'teacher learning' and its content.

Second, more focused research is needed into what is happening in school PD and the views of teachers and school leaders about those activities. As an illustration of the complexity involved, Hutchinson and Purcell (2007, 298) identified some supportive conditions that promote involvement in and commitment to learning and development in an organisation. Building a 'language of learning and development', to provide a common language for sharing understanding about developmental activities is essential. So too is 'creating a supportive organizational culture' (299) and 'an effective and widely used performance management system' (300). How these tasks are accomplished and what staff think of them are major research areas.

Third, PD processes need to be theorised more so that a body of principles can be developed that have validity beyond the locale where research evidence is gathered. For Education PD, it is time to distinguish the 'creating' of practices from the 'sharing' of them so that the intricacies can be revealed. Also in Education, it is probably time to transcend the 'community' view of 'teacher networks' unless these troublesome concepts are refined and made more productive. Promising theoretical approaches include 'learning' and there is a range of theories that can be drawn from other disciplines.

Fourth, the role of an outside 'expert' is established in teacher PD, notwithstanding some difficulties with differences of opinion about what expertness means when teachers are learning about pedagogy and curriculum. This point also encompasses the role of published research material that can be accessed and synthesized.

Fifth, teacher PD for whole of school change is a long-term process (e.g. 5 years) involving all school staff and other stakeholders. A planning framework (e.g. alignment, capabilities, engagement) and an expert leadership capacity are mandatory.

Sixth, in all of the teacher learning proposals, there is emphasis on teachers adopting a more 'research-based' approach to their work. This is both a mindset/belief attitude involving investigative skills and capacity to generate, analyse, interpret data and apply research-based findings. It also includes the capability to engage with and synthesize an international research literature about 'learning' and 'instruction' that in 2014 includes web-based resources (see Hirt & Willmott, 2014). How this can happen with the present framing of the 'schoolteacher' role and the nature of the teacher education programs in place and advocated by the accreditation agencies is a vexe4d question to say the least. On that issue, one might also reference the AITSL (2014) document on professional learning and performance and development that proposes integration, immersion, design-led approaches, market led approaches and open as innovative practices in professional learning and performance and development planning.

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