Literature Review

Supporting Teacher Professional Learning
Using a Sustained Coaching Model of Professional Development

The Alberta Assessment Consortium (AAC) is undertaking a research study that uses a sustained coaching model of teacher professional development (PD) to support both secondary mathematics teachers and leaders. This research study is an extension of a previous study supporting secondary mathematics teachers in implementing formative assessment strategies in their classrooms (Marynowski, 2013). The current study broadens the 2013 study by including mathematics department heads, coaches, or other mathematics leaders in the school as participants in both supporting them in their formative assessment practices and in effectively coaching their colleagues.

Through grant funding from Alberta Education, the AAC is providing secondary mathematics teacher leaders with access to a coach over the period of one school year to assist them in implementing formative assessment strategies into their classrooms. The intent of this research study is to determine if the sustained coaching model of PD impacts the ability of the coach to influence teacher practice with respect to implementation of formative assessment strategies. This literature review illustrates the characteristics of a sustained coaching model of teacher PD, highlights where teacher PD has been shown to be successful in changing teacher practice, and demonstrates the role of teacher leaders in sustaining professional learning.

Formative Assessment

Formative assessment has been shown by many researchers (Black & Wiliam, 1998; Clark, 2012; James & Folorunso, 2012; Stronge, Ward, & Grant, 2011; Wiliam, 2007; Wiliam, Lee, Harrison, & Black, 2004) to improve student learning in many different contexts. In this study, formative assessment is conceptualized as a process of gathering information to inform teaching and student learning. Wiliam (2011) stated that formative assessment is any "process by which instruction might be improved" (p. 38). The challenge is to encourage teachers to incorporate formative assessment practices into their teaching on a regular basis. The intent for the AAC research project is to demonstrate a model of professional development that works to embed formative assessment in teachers' practice and to improve student achievement.

Professional Development Models[1]

Within the literature there are numerous definitions of teacher PD. Conventional PD activities, such as conferences, lectures and teacher institutes, took teachers away from the school-setting in hopes that the teacher learning that resulted from participation would translate into student learning (Russo, 2004). A relatively new model of PD involves coaching specific to the context of the teacher's classroom, grade level or academic area (e.g. math, sciences). Presently there is no decisive definition of coaching or mentoring (Rhodes & Beneicke, 2002). In this review "coaching" will be defined as PD that incorporates sustained coaching as a primary component (support maintained over time), which involves individual or small group instruction (sessions tailored to specific needs of each teacher). Often mentoring and coaching are considered interchangeable in the literature, however for the purposes of this paper "mentoring" will not be included as an element of coaching.

Russo (2004) reports that years of disappointing results from conventional PD activities have increased the accountability on teachers following PD activities. The solution offered in this article is school-based coaching, which involves "experts in a particular subject area or set of teaching strategies working closely with small groups of teachers to improve classroom practice and ultimately, student achievement" (p. 1). Each coach works with a small group of teachers to first plan lessons, then present these lessons in demonstration classrooms while following up throughout the year to ensure that PD translates into actions that have a chance to improve student learning. Unlike many conventional forms of PD, which are led by "experts" who tell teachers what to do, school-based coaching is "deeply embedded in teacher's classroom work with children, specific to grade levels and focused on research-based approaches" (p. 2). School-based coaching allows teachers to experience PD in a setting where they are shown and not told. School-based coaching gives teachers an opportunity to improve their practice in a "reflective, supportive setting" (p. 4). Coaches bridge the gap between research and practice, "delivering the latest findings to where they are most needed- the classroom" (p. 4). In small schools, there are not enough staff members to serve as coaches in all of the areas that teachers may need, thus the need for an external coach to assist teachers is necessary.

Rhodes and Beneicke (2002) describe a continuing PD strategy that advocates for the use of coaching, mentoring and peer-networks to enhance teacher's professional skills and performance in schools. Within this model peer-coaching is supported, and involves a collaborative process in which "two or more professional colleagues work together to reflect upon current practices…build new skills; share ideas…teach one another, or problem solve within the workplace" (p. 298). This model of coaching is slightly different than the more common definition in which veteran teachers coach less experienced colleagues. However, similar to other models of in-class coaching, peer coaching retains ongoing maintenance as "coaching and feedback on professional practice [occurs] over a period of weeks or months" (p. 299). In the peer coaching model timely follow-up sessions often dictate "whether changes in practice survive" (p. 299). A close partnership between colleagues forms the foundation of peer coaching. Working together teachers are encouraged to place an emphasis on "collaboration and mutual support", and within peer coaching "these elements offer the potential benefits of raising teacher confidence, facilitating teacher learning and embedding improvements in

---

[1] This section was reproduced from the initial literature review for the 2012 AAC study.

professional practice within the classroom" (p. 305). Working with peers over time has been shown to be successful in embedding new practices into the daily work of teachers.

Loucks-Horsley and Matsumoto (1999) identified four characteristics that promote effective learning experiences for teachers. PD should be learner-centered; acknowledging and incorporating activities that teachers know and are able to do well. Beginning with that which is already known helps bridge to new understanding. Teachers learn best when activities are knowledge-centered, and learning should be supported to promote subsequent transfer into action. Within the structure of knowledge-based environments teachers gradually develop metacognitive skills- explaining, extending and evaluating their learning. Learning should also be assessment-centered, providing teachers with opportunities for feedback, reflection and revision. Teachers who are given time for self-reflection become better aware of what they have learned and how they will apply their learning. Optimal learning environments are also community-centered, building in time for teachers to collaborate and provide feedback, and learn from each other. Taken together these elements of the ideal learning environment share characteristics with models of sustained coaching PD. Coaches provide teachers with individual learner-centered attention, they give feedback and support knowledge transfer to the classroom. The sustained coaching model is based in a learning community, in which teachers are provided with guidance from the coach and support from colleagues in their school or district. The alignment between the ideals of effective learning environments and a coaching relationship further accentuates the benefits that are attainable in the model of sustained coaching PD.

According to Kelleher (2003) the central questions of teachers PD are, "how can we ensure that district goals drive professional development, and how can we help teachers translate adult learning into student learning?" (p. 754). In response, Kelleher contends that PD is most effective when it is embedded in teachers' work. PD should also challenge teachers to think critically about their practice, help them develop new instructional strategies and support them in designing formative assessments that measure how new practices have affected student learning. Kelleher suggests a six-stage model of effective PD that involves setting specific goals for student achievement, assessing growth through regular assessment and reflecting upon the outcomes. Within this model there is a call for administrators, mentors or peer coaches to play a pivotal role by providing guidance and regular feedback throughout the year. Throughout the six stages, the role of coach includes assisting with goal-setting at the beginning of the year, peer collaboration during the year and facilitating self-reflection both during the term and at the end of the year.

Continuing PD has garnered international interest as the traditional one-time PD sessions have given way to more sustained models of teacher development. Kennedy (2005) lists nine common models of continuing PD, including "the Coaching/Mentoring Model". Even though they share some qualities, most notably a supportive one-on-one relationship between teachers, Kennedy acknowledges that coaching and mentoring are not entirely synonymous. Coaching is more skills based (i.e., how to design a lesson plan) whereas mentoring is more like a professional friendship. In the case of "peer coaching" the relationship could be collegiate, yet for the most part coaching is hierarchical. For instance, the Teaching Council for Scotland has implemented a program for new teachers in which they are each assigned a more experienced teacher who acts as a "supporter" to ensure the new teacher maintains the proficiency to meet the standards of teacher competence. To further clarify this model Kennedy uses the analogy of the new teacher as an apprentice and

the coach as a guide. Specifically, the relationship is designed to provide new teachers with instruction and leadership, rather than evaluation and criticism. Kennedy emphasizes that the most crucial element of the coaching affiliation is the "quality of interpersonal relationships" (p. 243). In order for the Coaching/Mentoring Model to provide efficacy over time "participants must have well-developed interpersonal communication" (p. 243).

Wiliam, Lee, Harrison, and Paul (2004) report on the use of formative assessment strategies in classrooms in conjunction with targeted PD support for teachers. In their research one group of teachers were asked to incorporate formative in their classroom and the performance of their students was compared to other classes without formative assessment. The research project was implemented in two stages. First the "formative assessment group" attended a series of in-service session in which they were introduced to the authors' view of formative assessment for learning. During these sessions teachers were supported as they developed their own plans for assessment. After allowing time for the teachers to implement their plans in the classroom, the project staff visited the schools to observe the teachers, discuss how their ideas about formative assessment and plan how they could put it into practice more effectively. Some of the most common elements of the teaching plans included improving the teacher's own questioning, sharing the objectives of lessons with students, clearly outlining marking criteria, and using self-assessment to gauge student understanding. Students in the classrooms where teachers had received the formative assessment PD scored better than comparison groups on selected standardized academic assessment (effect size = 0.32). In addition, teachers reported that the benefits of the project not only spread to all of their classes, but "fundamentally altered their views of themselves as professionals" (p. 7). The formative assessment strategies proved to increase student achievement, and the PD support that teachers received supported the implementation of those strategies.

A recent study conducted in Alberta explored the connection between "teacher professional learning and teacher efficacy" (Beauchamp, Klassen, Parsons, Durksen, & Taylor, 2014, p. 13). In their longitudinal, mixed-methods study, Beauchamp et al. found that teacher-initiated professional learning and collaboration had the strongest influences on self-efficacy. They also found that teachers preferred to focus their learning on improving professional practice. One of Beauchamp et al.'s recommendations is that "time and space for *collaborative* professional learning activities" (p. 90, emphasis in original) be provided. Important to teachers was that they were given time, either within the school day or outside school hours, to engage with each other in working through "real classroom issues" (p. 87) that are apparent in their schools and contexts.

School Leaders and Professional Learning

Glazer and Hannafin (2006) developed a situated and collaborative apprenticeship model of professional learning that is based on creating a community of practice (Wenger, 1998) within a school. Glazer and Hannafin envisioned a teacher-leader within a school first modeling specific instructional practices that are being implemented within a school, then coaching colleagues in implementing such practices in their own classrooms. In this model, the teacher-leader "scaffolds and coaches the peer-teachers' development…and is mutually engaged" (p. 184) in implementing instructional strategies. Glazer and Hannafin stressed that in order for teacher professional learning to be sustained, teachers need to see it as "a continual activity that is both natural and expected of the teaching community" (p. 186) within that school. Having teacher-leaders explore new instructional strategies in their own classrooms before providing coaching to their peers

demonstrates that the teacher-leaders are also participants in the development of the community of practice within the school.

Knight (2002) argued that in order to develop a culture within a school that promotes continuous professional growth, leaders within a school need to have assistance in learning to "lead for learning" (p. 240) rather than management training. Knight contended that departments within schools serve as "sites of professional learning, not just as administrative conveniences" (p. 236). Improving the capabilities of teacher-leaders to lead instructional initiatives is echoed by Clement and Vandenberghe (2001). Having leaders within a department focus on the professional learning of themselves, and of the members of the department, provides impetus for professional growth to be continuous and to become part of the norm of the department. An increase in the attention that a particular department pays to professional learning and growth contributes to an increase in teachers' growth.

References

Beauchamp, L., Klassen, R., Parsons, J., Durksen, T., & Taylor, L. (2014). Exploring the development of teacher efficacy through professional learning experiences. Edmonton, AB: Alberta Teachers' Association.

Black, P., & Wiliam, D. (1998). Inside the Black Box: Raising standards through classroom assessment. *Phi Delta Kappan, 80*(2), 139-144, 146-148.

Clark, I. (2012). Formative assessment: A systematic and artistic process of instruction for supporting school and lifelong learning. *Canadian Journal of Education, 35*(2), 24-40.

Clement, M., & Vandenberghe, R. (2001). How school leaders can promote teachers' professional development. An account from the field. *School Leadership and Management: Formerly School Organisation, 21*(1), 43-57.

Glazer, E., & Hannafin, M. (2006). The collaborative apprenticeship model: Situated professional development within school settings. *Teaching and Teacher Education, 22*, 179-193.

James, A. O., & Folorunso, A. M. (2012). Effect of feedback and remediation on students' achievement in junior secondary school mathematics. *International Education Studies, 5*(5), 153-162. doi: 10.5539/ies.v5n5p153

Kelleher, J. (2003). A model for assessment-driven professional development. *The Phi Delta Kappan, 84*, 751-756.

Kennedy, A. (2005). Models of continuing professional development: A framework for analysis. *Journal of In-Service Education, 31*, 235-250.

Knight, P. (2002). A systematic approach to professional development: Learning as practice. *Teaching and Teacher Education, 18*, 229-241.

Loucks-Horsley, S., & Matsumoto, C. (1999). Research on professional development for teachers of mathematics and science: The state of the scene. *School Science and Mathematics, 99*(5).

Marynowski, R. (2013). Formative assessment in high school mathematics classrooms. Edmonton, AB: Alberta Assessment Consortium.

Rhodes, C., & Beneicke, S. (2002). Coaching, mentoring and peer-networking: Challenges for the management of teacher professional development in schools. *Journal of In-Service Education, 28*(2), 297-310.

Russo, A. (2004). School-based coaching: A revolution in professional developments - or just the latest fad? *Harvard Education Letter: Research Online*.

Stronge, J. H., Ward, T. J., & Grant, L. W. (2011). What makes good teachers good? A cross-case analysis of the connection between teacher effectiveness and student achievement. *Journal of Teacher Education, 62* 339-355. doi: 10.1177/0022487111404241

Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge: Cambridge University Press.

Wiliam, D. (2007). Content *then* process: Teacher learning communities in the service of formative assessment. In D. B. Reeves (Ed.), *Ahead of the Curve*. Bloomington, Indiana: Solution Tree.

Wiliam, D. (2011). *Embedded formative assessment*. Bloomington, IN: Solution Tree Press.

Wiliam, D., Lee, C., Harrison, C., & Black, P. (2004). Teachers developing assessment for learning: Impact on student achievement. *Assessment in Education: Principles, Policy & Practice, 11*(1), 49-65.