Professional Learning Community Focused on Assessment for Learning

by

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Abstract

This mixed methods study explored the questions: To what degree, if any, does the involvement in a structured professional learning community, focused on assessment for learning (AFL), lead to increases in secondary science and math teachers' reported levels of adoption of assessment for learning strategies; further, what factors did the participating teachers perceive as obstacles or support structures in doing such; finally, how did teachers' reported attitudes change towards assessment for learning? Seven secondary (Grades 8-12) math and science educators from different schools within the same school district in British Columbia worked together in a structured professional learning community (PLC) over the course of six months. The focus of the PLC was the study and implementation of the Network of Performance Based Schools Six Assessment For Learning Strategies (Halbert & Winter, 2008), adapted from the work of Black & Wiliam (1998). Participants were given an AFL practices rubric at the beginning and at the end of the study to determine the reported level of classroom adoption of the six AFL strategies. Professional learning community participants engaged in structured goal setting and reflection exercises that were recorded in writing. Participants' reflection logs were reviewed to determine what factors were identified as perceived obstacles or support structures. Teachers were also asked to complete an AFL attitude survey at the beginning and the end of the study to determine if there was a change in attitude towards the AFL strategies. Participants self reported that their attitudes about AFL improved and their use of the six AFL practices increased by the end of the study. Several obstacles were identified by the participants. Limitations and suggestions for future research are discussed along with suggestions for school organization.

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Chapter One: Problem to be Investigated

Purpose of the Study

The purpose of this study was to add to the existing knowledge regarding the

participation of teachers in a structured professional learning community (PLC) as a means of

providing on-going, localized professional development and support for teachers adopting

assessment for learning (AFL) practices. Implementing change in any organization can only

occur under conditions where people have an emotional need to change (Fullan, 2002;

Hargreaves & Fink, 2004). Tierney (2007) indicated that collaboration among practicing teachers

resulted in significant changes in professional beliefs and instructional practice. According to

Kaser and Halbert (2008), a school culture that is focused on learning is more able to shift

teacher practices. Furthermore, long lasting change is more likely if the professional

development is conducted locally over a suspended period of time and is comprised of

individuals who are actively engaged in the learning process (Tierney, 2007; Treagust, 2001;

Mabry, L., Poole, J., Redmond, L., Schultz, A., 2003). The results from this author's study can

be used by school districts to promote structured professional learning communities focused

upon improving instruction through the use of AFL strategies to directly impact student

achievement (Marzano, R., Pickering, D., & Pollock, J., 2001). An attempt has been made in this

study to address the fact that little research exists that ties the development of productive

professional norms and practices to professional learning communities (McLaughlin and Talbert,

2006). The procedure, co-developed by the author of this study along with another researcher,

provided a structured framework for creating a purposeful, results-focused PLC that can be

adopted by any school district.

Justification of the Study

A teacher's number one objective is to enhance the learning of all students. It has been stated that the best way to increase student learning is to include AFL in teacher practice, yet there are too many educators turning their backs to this overwhelming body of research which may impede learning (Marzano et al., 2001). Rick Dufour (2008) goes so far as to state that teachers that do ignore this research are performing educational malpractice.

Regardless of the research that indicates that the most significant way to improve student achievement is to improve instructional practice, many educators are still very reluctant to change what they are doing in their classrooms (Lock & Munby, 2000; Marzano et al., 2001; Sutton, 2008). There are a variety of reasons that teachers give to explain their reluctance to change but it has been found that collaboration among practicing teachers is the key to causing a positive change in how teachers approach learning and assessment in their classrooms. Once teachers are interested in altering the learning environment in their classrooms it is essential for them to have the support of their colleagues (Treagust, 2001). Mabry et al. (2003) found that many teachers recognized their colleagues as the most important source of information and teacher teams created a more powerful learning environment for all of their students.

In light of the benefits of collaboration, it follows that collaboration would be a powerful tool to engage teachers in a professional learning community focused upon improving instructional practice. This study investigates to what degree the involvement in a structured PLC focused on AFL leads to increasing the reported levels of adoption of assessment for learning strategies. This study also identifies factors that participants perceived to be barriers or support structures throughout their participation in a professional learning community in addition to determining any teacher reported attitude change towards assessment for learning strategies.

Research Question

To what degree, if any, does the involvement in a structured professional learning community, focused on assessment for learning, lead to increases in secondary science and math teachers' reported levels of adoption of assessment for learning strategies; further, what factors did the participating teachers perceive as obstacles or support structures in doing such; finally, how did teachers' reported attitudes change towards assessment for learning?

Definitions of Terms

The author of this study identifies a professional learning community (PLC) as defined by Robert Eaker and Rick DuFour (2002) as "a collaboration of teachers who work together to seek out best practices, test them in the classroom, continuously improve processes and focus on results". Assessment for learning (AFL) is any assessment that is designed to serve the purpose of promoting students' learning whereby evidence is used to adapt the teaching work to meet learning needs (Black, Harrison, Lee, Marshall, & Wiliam, 2004).

Brief Overview of Study

This study adds to the existing knowledge regarding the involvement in a purposeful PLC as a means of providing ongoing, localized professional development and support for teachers adopting AFL practices. Seven secondary (Grades 8-12) math and science educators from different schools within the same school district in British Columbia worked together in a structured PLC over the course of six months to determine to what degree their participation had on their level of adoption of AFL strategies. The focus of the PLC was the study and implementation of the Network of Performance Based Schools Six Assessment For Learning Strategies (Halbert & Winter, 2008) (see Appendix A). A structured procedure (see Appendix B) was designed and carried out by the researcher. Participants were given an AFL practices rubric

(see Appendix C) at the beginning and at the end of the study to determine the reported level of classroom adoption of the six AFL strategies. Professional learning community participants engaged in structured goal setting and reflection exercises that were recorded in writing and collected by the researcher throughout the study. Participants' reflection logs were reviewed to determine what factors were identified by participants as perceived obstacles or support structures as a result of the participation in a PLC focused on assessment for learning. Teachers were also asked to complete an AFL attitude survey (see Appendix D) at the beginning and the end of the study to determine if there was a change in attitude towards the AFL strategies.

Chapter Two: Background and Review of Related Literature

As stated in the introductory chapter, the most powerful way to improve student achievement is for teachers to adopt AFL as a means to guide instruction (Wiliam, 2006). Regardless of this research, many educators are still very reluctant to change what they are doing in their classrooms (Lock & Munby, 2000; Marzano et al., 2001; Sutton, 2008). Tierney (2007) indicates that collaboration amongst practicing teachers result in significant changes in professional beliefs and instructional practice. According to Kaser and Halbert (2008), a school culture that is focused on learning is more likely to shift teacher practice than a culture that is focused on sorting. Furthermore, long lasting change is more likely if the professional development is conducted locally over a extended period of time and is comprised of individuals who are actively engaged in the learning process (Tierney, 2007; Treagust, 2001; Mabry et al., 2003). The following studies provide further support to the idea that teacher collaboration will result in a change in teacher attitudes and lead to the adoption of AFL strategies to improve student learning and achievement.

Studies Directly Related

Wiliam, Lee, Harrison and Black (2004) found that students in secondary school classrooms whose teachers incorporated assessment for learning into their classroom practice had increased scores on year-end standardized tests compared to students in the same school whose teachers did not practice AFL. In this study, six secondary schools in two different school districts in the United Kingdom were chosen based on their preliminary work with AFL. Two math and two science teachers with a variety of experience and expertise were chosen by each school to participate in the eighteen month study. Each of the participants chose one of their classes to be used throughout the study. Two main interventions were utilized in this study: in-

service sessions and school visits that included classroom observation, lesson co-planning and debriefing. The in-service sessions were spread throughout the eighteen month study and served to provide the foundations of AFL to the participants, along with time for teachers to develop individual action plans that included aspects of AFL, share classroom experiences with the group and give teachers time for written personal reflection.

The researchers collated the participants' action plans throughout the study and categorized the frequencies of AFL practices used. Upon comparing the participants' action plans the results showed that an average of four AFL strategies were focused upon in each of the twenty-four participants' action plans. As a result of the school visits, the researchers observed that teachers' practices were slow to change although the most change occurred toward the end of the project. Participants' class results on year-end standardized tests were compared against similar classes in the same school taught by a different teacher who was not practicing AFL strategies. Results indicated a mean effect size in favour of the intervention of 0.32. Upon concluding the study, the majority of the participants reported the adoption of AFL strategies in all of their classes, not just the one class included in the study.

It was recognized by the researchers that the mean effect size in favour of the intervention was low. This could be attributed to the difficulty of finding two equally comparable classrooms. As well, the sample size of twenty-four participants may not be enough to indicate any significant findings. Although the researchers observed that most of the participants did change their practice to include AFL, more change was noted towards the end of the study. This may indicate the need for a longer study in order to truly capture the impact of the adoption of AFL strategies on student achievement.

Dekker and Feijs (2005) conducted a two and a half year study to determine whether or not teachers involved in the Classroom Assessment as a basis for Teacher Change (CATCH) project experienced a change in attitude and classroom practice with respect to AFL. Twelve middle school math teachers from two different school districts in the United States underwent a series of three structured interviews over the course of the two and a half year CATCH project. Interview responses were coded to determine whether or not there was a change in teachers' views and attitudes towards AFL and/or a change in teachers' classroom assessment practices as compared to their previous interview. Conclusions were based on absolute frequencies of responses due to the low number of participants.

Results of this study indicate that all participants showed a change in attitude toward AFL early on in the CATCH project but that changing their practice took more time. After a full year of participation in the CATCH project, all participants indicated that they had changed their assessment practice. These results are important as they provide further evidence that although teachers may cognitively recognize the need to change their assessment practice, it may take longer to put this change into action in their classrooms.

Studies Tangentially Related

Schnellert, Butler and Higginson (2008) found that teachers engaging in a reflective inquiry cycle of professional development were more likely to change their instructional practice to meet the needs of their students and deepen student learning. The purpose of this study conducted by Schnellert et al. (2008) was to investigate the impact on instructional practice when teachers worked collaboratively using reflective inquiry. Six participants in this study were chosen because of their involvement in a larger project. These six teachers worked together at a Grade 7-9 school teaching science or humanities and had a range of teaching experience between

5-25+ years. Participants administered two different literacy assessments (LTRQ and PBA) to each of their classes, once at the beginning of the school year and again at the end of the school year.   The stated purpose of these assessments was to integrate the results into their collaborative cycle of inquiry and in turn, drive their instruction. Schnellert et al. (2008) used a variety of data collection methods including teacher interviews, field notes, classroom observations, classroom artifacts (lesson plans, student work) and literacy assessment data. Each participating teacher was asked a set of six questions during the teacher interviews. Interviews were transcribed and common themes were coded and data was organized into discernable patterns in order to draw conclusions. Schnellert et al. found that teachers can make changes in their practice that result in increased student achievement if they are given ongoing opportunities to work collaboratively in a structured, goal-focused team.

Limitations of this study by Schnellert et al. (2008) include a limited sample of only six teachers and may not provide enough data to extrapolate the findings to a larger population. Furthermore, there was no control group (comprised of teachers who administered the two literacy tests but did not work collaboratively to improve their practice) therefore there is no certainty that it was the collaboration or the literacy assessment that caused a change in teacher practice. The duration of this study may not be long enough to draw conclusions of sustainability in teacher's change in practice.

In order to provide further support that on-going job-embedded teacher collaboration will bring about a change in instructional practice, Graham (2007) found a positive relationship between PLC activities and teacher improvement in a southeastern United States middle school. Results from a Teacher Activity Survey given to twenty full time, core academic teachers

showed a positive relationship to changes in teachers' knowledge and skills and changes in

teaching practices as a result of participating in an ongoing PLC.

Graham's study also included interviews of ten staff members. Responses were

categorized into common themes providing qualitative support for PLCs and change in teachers'

knowledge and practice. The majority of the interviewed participants identified PLCs as a means

to collaborate and provide support and motivation for teachers to experiment with new teaching

techniques and improve their practice. Results of this study identified three layers of factors that

influenced this school's PLC and teacher improvement: organizational structures and leadership

practices, content and mediation of PLC meetings focused on student learning, professional

conversations and conflict management that supported the development of a true professional

learning community. The author of this study recognized that only when all three of these factors

were in place could there be a genuine change in knowledge and teaching practice.

The findings of this author's study might be limited as data was only collected from one

school which was in its first year of operation and whose staff had been hired due to their desire

to participate in a PLC. In addition, this study was only conducted over the course of one school

year and so it is difficult to determine the sustainability of the effects of working collaboratively

in a PLC.

Landrum, Cook, Tankersley and Fitzgerald (2002) examined the extent teachers to which

teachers would obtain and trust useful information from a variety of sources. The sample

consisted of 127 experienced teachers enrolled in a university teaching methods course.

Participants were each given a questionnaire to rate the trustworthiness, usability and

accessibility of information from four sources: experienced teachers, conferences/workshops,

college coursework and professional journals. Each of the sources were rated using a 4-point

Likert scale. Lundrum et al. reported that 100% of the questionnaires were completed and returned. The results indicated that experienced teachers rated highest as the source of information in all three items; trustworthiness with a mean of 3.50, usability with a mean of 3.63 and accessibility with a mean of 3.67.

Limitations of this study include a one-time sampling of 127 volunteers all of whom were enrolled in a university methods course. This sample may not represent the average practicing teacher. In addition, due to the nature of the questionnaire (Likert scale) participants were not given an opportunity to extend their responses to include written responses that may have been relevant to the study.

Treagust, Jacobowitz, Gallagher, and Parker (2001) stated that the purpose of their study was to show one teacher's way to embed assessment throughout her instructional practice as a way to improve student learning and deepen the understanding of eighth grade science students. The teacher observed in this study was chosen due to her experience in a previous research study and because she was adept at embedding assessment in her daily instructional practice.

Treagust et al. (2001) used an interpretative research methodology with minimal interference by the researchers in the teacher's classroom. Science lessons were videotaped over the course of three weeks and the teacher was later interviewed regarding her embedded assessment activities. Students were interviewed to find out how they felt about the lesson and the assessment strategies and how each contributed toward helping or hindering their learning. After observations were complete, the incidences of embedded assessment used throughout the three week period were collated into five general assertions. Treagust et al. indicate that assessment can and should be embedded throughout classroom instruction in order to enhance

student understanding and learning. The authors of this study indicated that it is possible to create an assessment culture in schools versus a culture of testing.

Limitations in this study by Treagust et al. (2001) include a small sample size of only twenty three students all in one grade eight class, taught by one teacher. Another limitation is that no control group was established to compare the treatment group against to clearly establish whether or not the use of embedded assessment genuinely enhanced the learning experience. In addition, results were based purely on observations by Treagust et al. along with teacher and student interviews. The data was based on individual feelings by the teacher or students and the findings may not be used to generalize the effectiveness of embedded assessment in other classrooms.

Summary of Related Literature

The study by Schnellert et al. (2008) is important in that it provides further evidence that teachers working collaboratively in a structured manner focused upon student learning is an effective method of meaningful, on-going professional development and supports the notion that teachers who work together are more likely to change their instructional practice than those teachers who work in isolation. Landrum et al. (2002) supports the idea that collaborative teams of colleagues are a trustworthy, accessible and usable means of professional development available to practicing teachers. The study conducted by Graham (2007) clearly shows the positive attributes of a whole staff working in a focused PLC to improve teacher practice. Research conducted by both Wiliam et al. (2004) and Dekker et al. (2005) indicate that teacher attitude is quicker to change compared to a change in practice, but given time it will occur. Finding from these studies combined with the knowledge gained by Treagust et al. (2001) with regards to using embedded assessment to deepen student learning sets the foundation for the

author of this study which focused on the relationship between the participation in a professional

learning community and the adoption of assessment for learning strategies by Grade 8-12 science

teachers.

Chapter Three: Procedures and Methods

Description of the Research Design

This study utilized a mixed methods approach (Frankel and Wallan, 2008) using the explanatory design of collecting quantitative data followed by qualitative data to help clarify and explain to what degree, if any, did the involvement in a structured PLC focused on AFL lead to increases in secondary math and science teachers' reported levels of adoption of AFL strategies. In addition, this study identified factors that participants perceived as obstacles or support structures in the process of adopting AFL practices along with any reported changes in attitude towards AFL.

At the beginning of this study, participants were asked to rate themselves on an AFL practices rubric to determine the participants' perceived level of adoption of each of the six assessment for learning strategies derived from the work of Black & Wiliam (1998) and further refined by Halbert & Winter (2008). Teachers were also asked to complete an AFL attitude survey to identify their feelings about the six AFL strategies. Both of these instruments were used as baseline measurement tools. Furthermore, participants took part in a reflective writing process throughout the six month study. The author of this study reviewed the reflection logs and identified common factors that participants reported to be perceived obstacles or support structures in their pursuit of adopting AFL strategies.

Participants were involved in a structured PLC that met monthly over six consecutive months. Participants were asked to provide written reflections based on a set of prompts given by the researcher (see Appendix E). Participants were also asked to set individualized goals at the end of each monthly session as a way to put their learning into an action plan to be used in their classrooms between PLC sessions. Upon completion of the study, participants were asked to

reevaluate themselves using the AFL practices rubric and the AFL attitude survey that were used at the beginning of the study. Results were compared to determine to what degree, if any, did the involvement in a structured PLC focused on AFL lead to increases in teachers' reported levels of adoption of AFL strategies. In addition, this study identified factors that participants perceived as obstacles or support structures in the process of adopting AFL practices along with any reported changes in attitude towards AFL.

Description of the Sample

Participants in this study were comprised of seven secondary (Grade 8-12) math and science teachers who all teach in the same rural school district in British Columbia, Canada. These participants volunteered to take part in this study as a result of an information session advertised to all Grade 8-12 math and science teachers in this school district. All participants gave their free and informed consent to participate in this study and their identity was protected throughout the study. These teachers range in experience from five to twenty five and vary in age and gender.

Description of the Instruments Used

Two Likert-style instruments were used in this study: an AFL practices rubric and an AFL attitude survey. The AFL practices rubric was used at the beginning and end of this study to determine the participants' perceived level of adoption of the six AFL strategies. The results of the AFL practices rubric were compared to determine the perceived level of classroom adoption of the six AFL strategies. The AFL attitude survey is a fourteen item survey to which participants responded using a 5 point Likert-type format. The AFL attitude survey was used to identify the participants' feelings towards assessment for learning. The mean results of the AFL practices rubric were compared at the beginning and end of the study in order to determine any

change in adoption levels. The mean results of the AFL attitude survey were compared at the beginning and end of the study to determine any change in teacher attitude towards assessment for learning.

In addition, qualitative data was collected throughout this study in the form of individual teacher reflections and goals based on a set of prompts asked at the end of each PLC learning session. This data was collected and reviewed to identify any common factors that participants reported to be perceived obstacles or support structures in their pursuit of adopting AFL strategies.

Explanation of the Procedures Followed

Over the course of six consecutive months, seven secondary (Grade 8-12) math and science educators from the same school district were involved in a structured professional learning community that followed a structured protocol, co-developed by the researcher along with another researcher (whose focus was on working with Humanities teachers). This PLC included learning sessions, co-construction, co-teaching, classroom observation and co-deconstruction of classroom lessons along with individualized goal setting and reflection. Each of the learning sessions focused on one of the Network of Performance Based School's Six Assessment For Learning Strategies that Matter (Halbert & Winter, 2008).

In the first PLC session, participants met for a full day and were introduced to the study and asked to rate themselves on the AFL practices rubric and AFL attitude survey. The researcher outlined the purpose of the Network of Performance Based School's Six Assessment for Learning Strategies that Matter developed by Halbert and Winter (2008) that served as the framework for all of the professional learning community sessions in the study. Participants spent the rest of the session focusing on clarifying learning intentions and designing and using

thoughtful classroom questions to lead discussions (Halbert and Winter, 2008) using the technique of structured A/B partner talk. At the end of the session, participants were asked to write down a specific action oriented goal expressing how they would implement the session's focus into their classroom practice. It was explained by the researcher that the participants were expected to experiment with this strategy in their classrooms over the course of the next month until the next PLC session. The researcher asked for two volunteers in the group to offer their class for the next session in order to co-plan, co-teach and demonstrate a lesson that would integrate their learning.

In the second PLC session, two volunteer teachers were released for a half day to work with the researcher. They worked with the researcher to co-plan a lesson focused on clear learning intentions that incorporated the use of thoughtful classroom questions. The researcher recorded the lesson on the co-planning worksheet (see Appendix F). The next day, another half day was used by the entire PLC to observe and deconstruct the lesson and re-evaluate their personal goals. Before observing the lesson, the researcher set the lens for their observation stating that their role was to focus on the assigned strategy and to notice the engagement of the learners in the classroom. Teacher observers were given a copy of the lesson plan along with a classroom observation sheet (see Appendix G). Teacher observers were asked to sit at the back of the classroom and not engage with the students. After the lesson, the entire PLC deconstructed the lesson. Participants reviewed their previous month's goal and were asked to re-evaluate it, and make a revised goal for their classroom practice based on their new learning from this session and their previous month's classroom experimentation.

In the third month, participants met for a full day. The participants spent the day focused on learning about developing and sharing criteria and providing regular, thoughtful feedback

(Halbert and Winter, 2008) using the techniques of T-square and concept attainment. At the end of the session, participants were asked to write down a specific action oriented goal expressing how they would implement the session's focus into their classroom practice. It was explained by the researcher that participants were expected to experiment with this strategy in their classrooms over the course of the next month until the next professional learning community session. The researcher asked for two volunteers in the group to offer their class for the next session in order to co-plan, co-teach and demonstrate a lesson that would integrate their learning.

In the fourth month, a half day was used for the researcher and two volunteer teachers to co-plan a lesson focusing on developing and sharing criteria and providing regular, thoughtful feedback learning using the techniques of T-square and concept attainment. The next day, another half day was used by the entire professional learning community to observe and deconstruct the lesson and re-evaluate goals. Before observing the lesson the researcher set the lens for their observation stating that their role was to focus on the assigned strategy and to notice the engagement of the learners in the classroom. Teacher observers were given a copy of the lesson plan along with a classroom observation sheet. Teacher observers were asked to sit at the back of the classroom and not engage with the students. After the lesson, the PLC deconstructed the lesson. Participants reviewed their previous month's goal and were asked to re-evaluate and make a revised goal for their classroom practice based on their new learning from this session and their previous months' classroom experimentation.

In the fifth month, participants met for a half day. They spent the day learning how to activate students as the owners of their own learning and activate students as learning and teaching resources for one another (Halbert and Winter, 2008) using exemplars, rubrics and the ticket-out-the-door strategy. At the end of the session, participants were asked to write down a

specific action oriented goal expressing how they would implement the session's focus into their classroom practice. It was explained by the researcher that the participants were expected to experiment with this strategy in their classrooms over the course of the next month until the next PLC session. The researcher asked for two volunteers in the group to offer their class for the next session in order to co-plan, co-teach and demonstrate a lesson that would integrate their learning.

In the sixth month, a half day was used for the researcher and two volunteer teachers to co-plan a lesson focused on how to activate students as the owners of their own learning and activate students as learning and teaching resources for one another (Halbert and Winter, 2008) using exemplars, rubrics and ticket-out-the-door. The next day, another half day was used by the entire PLC to observe and deconstruct the lesson and re-evaluate goals. Before observing the lesson the researcher set the lens for their observation stating that their role was to focus on the assigned strategy and to notice the engagement of the learners in the classroom. Teacher observers were given a copy of the lesson plan along with a classroom observation sheet. Teacher observers were asked to sit at the back of the classroom and not engage with the students. After the lesson the entire PLC deconstructed the lesson. Participants reviewed their previous months' goal and were asked to re-evaluate and make a revised goal for their classroom practice based on their new learning from this session and their previous month's classroom experimentation. At the end of this session, participants were asked to complete the AFL practices rubric and AFL attitude survey to determine any change in the perceived level of adoption and practice of the six assessment for learning strategies.

Discussion of Validity

Although every attempt was made to minimize any threats to internal validity, it is important to note potential threats. As this study was performed by a practicing teacher who

worked in the same school district as the participants in the study, previously established relationships or background knowledge about the researcher and the participants could have affected the responses of the participants and thereby affected the data collected. In order to reduce this threat each participant was randomly assigned a number that was used throughout the study so that participant anonymity was preserved in order to limit data collector bias.

In order to reduce instrument decay, the author of this study used the AFL practice rubric and AFL attitude survey a maximum of two times, once at the start of the study (month 1) and again at the end of the study (month 6).

Due to the voluntary nature of this study, it is possible participants were already interested in adopting AFL strategies and results may have been a product of their predispositions.

Description and justification of the statistical techniques used

Data from each participant was collected using the AFL practices rubric given at the beginning (month 1) and end of the study (month 6). Mean scores were calculated for each of the AFL practices rubric items. The mean scores at the beginning and end of the study were compared to determine the change, if any, in the reported levels of adoption of each of the AFL strategies. A bar graph was used to graphically depict the data for each of the items on the AFL practices rubric.

Data from each participant was collected using the AFL attitude survey and a mean score was calculated for each of the items on the AFL attitude survey at the beginning and at the end of the study. The mean scores were calculated to determine if any reported change in attitude regarding the AFL strategies occurred between the beginning and the end of the study. A bar graph was used to graphically depict the data for each of the items on the attitude survey. A

review of the participants' monthly goals and reflections was conducted to identify any common

factors that participants reported to be perceived obstacles or support structures in their pursuit of

adopting AFL strategies. The results were depicted in a table.

Chapter Four: Results

This chapter will reveal the findings of the research. Data was generated by two instruments; an AFL practices rubric and an AFL attitude survey, supported by qualitative data gathered from a review of participants' reflection logs.

The AFL practices rubric was used at the beginning and at the end of this study to determine the participants' perceived level of adoption of the six AFL strategies. A numerical score ranging from 1 to 5 was assigned for each of the cells on the rubric where 1 represented the rating of "I haven't tried this yet" and 5 representing the rating of "I do this automatically". Mean scores were calculated for each of the six AFL practices rubric items for the entire sample. The difference in these mean scores at the beginning and at the end of the study were compared to determine any change in the reported levels of adoption of each of the AFL strategies. A bar graph was used to graphically depict the data for each of the items on the AFL practices rubric.

Data from each participant was collected using the AFL attitude survey and a mean score was calculated for each of the items for the entire sample, at the beginning and at the end of the study. The mean scores were compared to determine if any reported change in attitude regarding the AFL strategies occurred from the beginning to the end of the study. A bar graph was used to graphically depict the data for each of the items on the attitude survey.

Change in reported levels of adoption of AFL practices

There was an overall increase in all of the mean scores at the end of the study (month 6) compared to the beginning of the study (month 1). For each item on the AFL practices rubric there was a shift to the right indicating increased use of all of the six AFL practices by the conclusion of the study (see Table 1). Figure 1 indicates the increased reported adoption of all six of the AFL strategies by the end of the research study.

AFL Strategy #1: Provide learners with clarity about an understanding of the learning intentions and connect learning intention to life beyond school. The change in the reported level of adoption of learning intentions in teacher classroom practice increased by 1.04 by the end of the study.

AFL Strategy #2: Provide and/or co-develop with learners criteria for success. The change in the reported level of adoption of using criteria with learners increased by 0.48 by the end of the study.

AFL Strategy #3: Provide ongoing thoughtful feedback that is specific to the learning intention. The change in the reported level of adoption of using thoughtful feedback increased by 0.48 by the end of the study.

AFL Strategy #4: Design and use thoughtful questions to lead discussions and generate evidence of learning. The change in the reported level of designing and use of thoughtful questions increased by 0.38 by the end of the study.

AFL Strategy #5: Put learners to work as learners/teaching resources for each other. The change in the reported level of adoption of putting learners to work as learners/teaching resources for each other increased by 0.81 by the end of the study.

AFL Strategy #6: Support students as owners of their own learning. The change in the reported level of adoption of supporting students as owners of their own learning increased by 0.64 by the end of the study.

Table 1

Mean reported levels of adoption of AFL Practices

AFL Practice	Month 1	Month 6	Δ
1- Learning Intentions	3.06	4.1	1.04
2- Criteria	3.09	3.57	0.48
3- Feedback	3.19	3.67	0.48
4- Questions	2.81	3.19	0.38
5- Peer assessment	2.43	3.24	0.81
6-Ownership	2.76	3.4	0.64

Figure 1. Change in mean reported levels of adoption of each of the six AFL strategies.
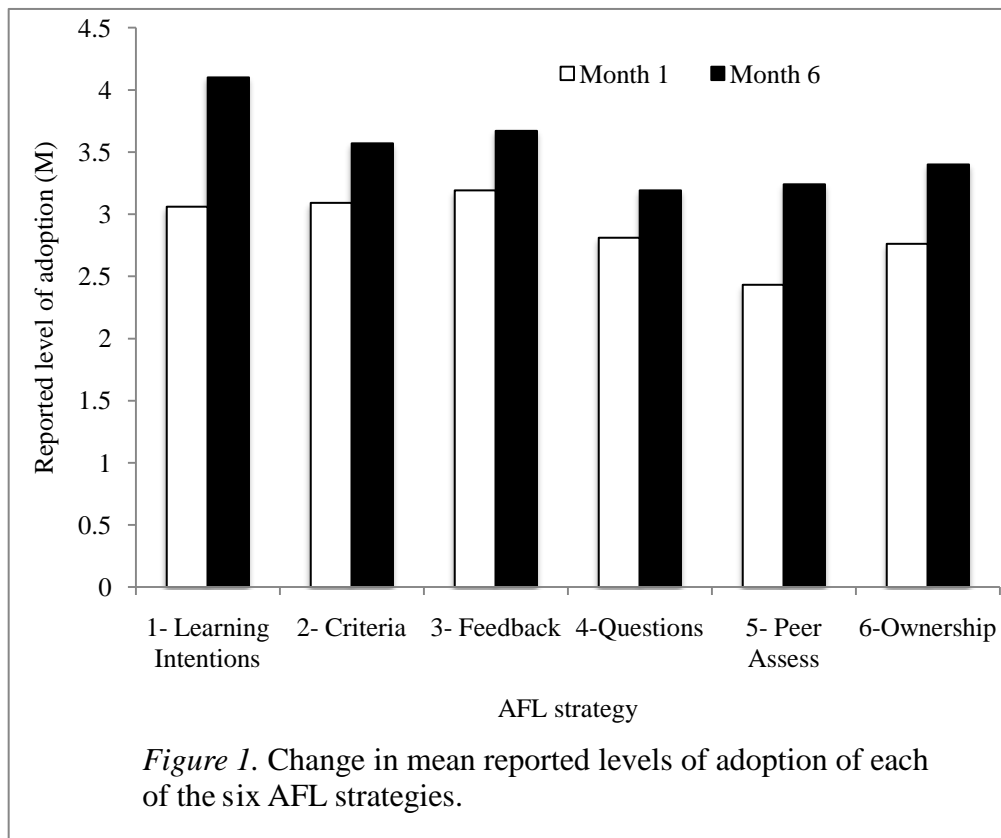
Change in reported attitudes about AFL

The AFL attitude survey was used at the beginning and at the end of the study to determine teachers' attitudes towards AFL strategies. A numerical score ranging from 1 to 5 was assigned to each response, where 1 corresponds to 'strongly disagree' and 5 corresponds to 'strongly agree'.

There was a reported change in attitude about AFL by the end of the study (month 6) compared to the beginning of the study (month 1) for every survey item with the exception of item number five, which indicated no change (see Table 2).

Table 2

Mean reported change in attitudes about AFL for each of the survey items

Attitude survey item	Month 1	Month 7	Δ
1. I think that an essential part of the assessment process guides what I do in my classroom based on evidence of student learning.	4.1	4.6	0.4
2. I believe that providing learners with clear learning intentions is an important aspect of lesson design.	4.3	5.0	0.7
3. I do not believe AFL is a worthwhile focus for professional development.	1.4	1.1	-0.3
4. I think that AFL motivates and engages students in their learning.	4.1	4.6	0.4
5. I do not believe that it is important to connect the learning intentions to the students' lives beyond school.	1.6	1.6	0.0
6. I think that providing students with criteria will result in higher quality student work.	4.6	4.9	0.3
7. I think that thoughtful feedback should be directly related to the criteria.	4.4	4.7	0.3
8. I do not think that "good job" is an example of thoughtful feedback.	3.9	3.7	-0.2
9. I think that co-developing criteria with my students will result in an increased understanding of the learning intentions.	4.1	4.9	0.7
10. I believe time spent teaching my students peer assessment strategies is time well spent.	3.7	4.3	0.6
11. I do not believe pre-planning of high level thinking questions is an important aspect of lesson design.	2.1	1.6	-0.6
12. I think that asking high level questions during a lesson will result in deeper student understanding.	4.1	4.4	0.3
13. I believe time spent teaching my students self assessment strategies is time well spent.	3.9	4.6	0.7
14. I think that summative assessments motivate and engage students in their learning	3.0	2.7	-0.3

Due to the intentional design of the AFL attitude survey by the researcher, all positively worded items resulted in a positive change in the mean. All negatively worded items, with the exception of item number five resulted in a negative change in the mean by the end of the study. The mean score for item number five did not change by the conclusion of the study indicating that no reported change in attitude resulted for that item. Figure 2 indicates the reported change in attitude for each survey item over the course of the study.

Figure 2. Reported change (M) in attitude about AFL for each survey item
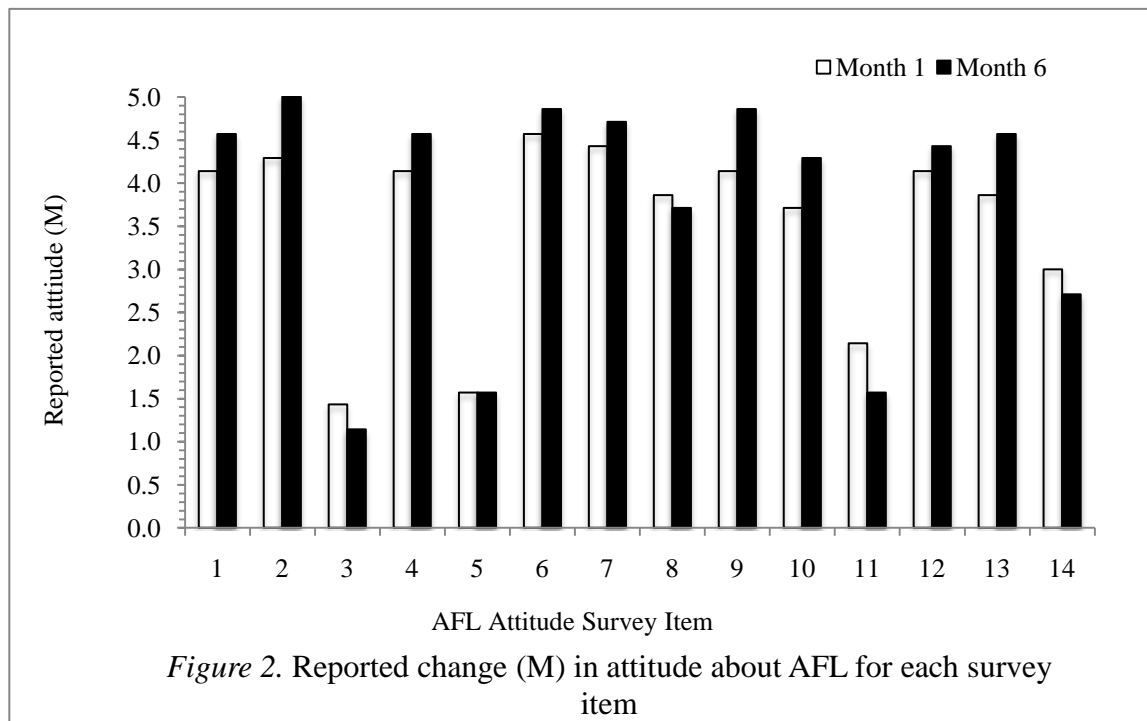
Perceived obstacles or support structures in the study

Participants' monthly reflection logs were reviewed looking for factors that participants reported to be perceived obstacles or support structures in their pursuit of adopting AFL strategies (see Table 3).

Table 3

Perceived obstacles and support structures identified in participant reflection logs

Obstacles	Support structures
• Lack of time for complete course overhaul to fully incorporate AFL • Lack of experience with AFL to feel confident with all six strategies • Remembering to incorporate AFL strategies in lesson planning • Remembering to build time into lesson for students to use feedback in a meaningful way • Uncertain of how to design lessons that fully incorporate AFL • Recognition that old habits are hard to break/change • Lack of physical place in classroom to display learning intentions • Difficulty balancing time and content pressures of secondary curriculum	• None identified

The results reported within this chapter will be explored further in chapter five of this research study. In addition, limitations and recommendations arising from the results will also be discussed.

Chapter Five: Discussion

Summary of the study

The purpose of this study was to add to the existing knowledge regarding the participation of teachers in a structured professional learning community as a means of providing on-going, localized professional development and support for teachers adopting assessment for learning (AFL) practices. A literature review of professional learning communities and assessment for learning was conducted and discussed in chapter 2. Two instruments, an AFL practices rubric and an AFL attitude survey, co-designed by the researcher and another researcher, were given to seven secondary math and science teachers who all work in the same school district in British Columbia, Canada. Participants attended sessions where they learned about each of the six AFL strategies. These sessions were followed up by classroom observations where volunteers co-planned and co-taught a lesson incorporating AFL strategies while the remainder of the group observed. Following the lesson, all of the participants de-constructed the lesson. Participants also engaged in structured goal setting and reflection exercises that were recorded in writing and collected by the researcher throughout the six month study. This researcher has considered the responses of the participants along with the findings of the literature review in order to make some recommendations for any school or district leaders who wish to create a purposeful, results-focused professional learning community that focuses on student learning.

Discussion of the implications of the study

This study provides several important findings. First, all seven participants in the study reported an increase in their use of each of the six AFL strategies by the end of the study. Results for each of the six AFL strategies is discussed separately.

Strategy #1: Provide learners with clarity about an understanding of the learning intentions

The greatest increase was with AFL strategy number one, providing clear learning intentions and connecting learning to life beyond school, with a reported change of 1.04 for the entire sample. Upon review of participants' reflection logs all participants reported the importance of using learning intentions as part of their daily routine. One participant reported that they were "…[using learning intentions] on a regular basis and leaving previous days' intentions up so students can see how they connect and build on each other." Another participant noticed that learning intentions "…were well received by students and seemed to help nail down their learning." Additional positive support was noted by another participant as they wrote, "…using I can statements is great as it gives the students a purpose and a focus." A possible reason for such growth in this area of AFL may be due to the focus on learning intentions at a recent district-wide implementation day, where all teachers were provided with in-service in this area. In addition, many of the participants in the study had indicated some level of experience with using learning intentions in their classroom prior to the start of the study.

Strategy #2: Provide and/or co-develop with learners criteria for success

All of the participants expressed that they had experience using criteria but many had not co-developed the criteria as part of a group of learners. It was recognized by one participant that they needed to "…plan ahead and be more mindful of how assignments can be designed to incorporate criteria building." Some of the participants expressed success using criteria in their science classes but seemed to be frustrated applying criteria in their math classes. One participant wrote, "I have not developed criteria in math. I see how it is valuable in other subjects. I am not sure how to do it." Another reflected that they were "…trying to make students aware, that they should do well if they follow set criteria."

Strategy #3: Provide ongoing thoughtful ongoing feedback that is specific

It has been noted by the researcher's own experience as a secondary math and science educator that there can be a hesitancy for some science and math educators to fully adopt the use of meaningful anecdotal feedback that is not numerically based. As a group who are often analytical in their approach, these professionals can often place emphasis on whether or not a student is 'right' or 'wrong' with respect to their understanding of a concept. Knowing that this mindset exists, participants were asked, during the second learning session, to process a series of articles focused on student engagement and motivation. It was observed by the researcher that the participants recognized that giving thoughtful and specific feedback to the learners elicited positivity and motivated the learners to improve their work once they knew what they needed to do better the next time.

During the demonstration lesson, participants observed students responding to the descriptive feedback given to them by their teacher and by their peers. In the debriefing after the lesson, participants recognized the connection between effective feedback and criteria. One participant commented that, "…feedback is easier or quicker to give if meaningful criteria is first established." Although participants were able to notice firsthand that not all feedback we give should be evaluative (letter grade or percentage based) one participant's reflection log asked; "How do I connect marks to descriptive feedback?" The researcher has noted that this is a question that has come up in conversations between secondary educators who are accustomed to the practice of assigning grades and percentages. During PLC sessions, there was some discussion regarding the need for both formative and summative assessment throughout the learning cycle.

Strategy #4: Design and use thoughtful questions to lead discussions

During the learning sessions, the researcher deliberately modeled a variety of questioning strategies. These included structured A/B partner talk, increased wait time and the use of reporting out frames. This was done in order for participants to experience for themselves different ways to encourage all learners to actively participate in their learning and to push their thinking to a higher level. Many of the participants stated in their reflection logs that at the beginning of the study they were not using thoughtful questioning techniques. One participant wrote that they "…had not yet designed thoughtful questions but had been using smaller, fly-by-the-seat-of-my-pants ones." Another participant expressed their frustration with students who answer "I don't know" and he wondered, "…how could I hold more of my students more accountable?" By the end of the study, all participants expressed in their reflection logs that they had experimented with at least one of the questioning techniques that was modeled in the learning sessions or was observed in one of the classroom observations.

Strategy #5: Put learners to work as learners/teaching resources for each other

Another area of increase as indicated by the AFL practice rubric was with AFL strategy number five, putting learners to work as learners/teaching resources for each other, with a change of 0.81. This AFL practice had the lowest mean value (2.43) at the beginning of the study, with many participants disclosing in their reflections that they had little to no experience incorporating peer assessment in their science and math classrooms. One participant reflected that they "…will need to improve my comfort level with peer assessment before implementing this in my science class." The focus for the final classroom observation was around the use of peer assessment in a grade 8 science class. In the lesson, students demonstrated their ability to give meaningful feedback to their peers in a thoughtful and purposeful way to help their peers

improve their work before turning it in to be assessed. Participants witnessed students deliberately using the co-developed criteria and structured A/B partner talk to help guide their discussions. Participants commented during the post lesson debrief that they were surprised that middle school aged students could articulate their thoughts in such a constructive way as to help each other improve. Upon conclusion of the study several of the participants had made goals that indicated that they would use peer assessment in their upcoming lessons.

Strategy #6: Support students as owners of their own learning

In the last learning session, participants discussed what was currently working for them, what was not working and where they wanted to go next with their practice. It seemed clear to the researcher that most of the participants had come to the same realization as was first discovered by Black et al. (2004) that all six of the AFL strategies are interrelated and it was difficult to address one or two without the others. As to what was working, one participant stated that the foundation for their AFL work was a "…shift in focus from grades to learning and that my students seem to be genuinely starting to own their learning." One participant noted in their reflection log that they now ask their students to "…self assess whether they are close to meeting the criteria before submitting their work." Yet another participant wrote that "Once students hand in completed work they already seem to know where they are at in terms of the criteria of the assignment or assessment and how they can improve in the future." The researcher observed that participants became more acutely aware that self assessment is not useful unless meaningful criteria has been established and is understood by students. The researcher also noticed agreement amongst participants that meaningful self assessment shifts the focus towards improvement and learning and away from marks and letter grades.

Another important finding in this study was with respect to the reported change in attitudes about AFL. As reported in chapter four of this study, all survey items indicated a shift in teacher reported attitude towards AFL by the end of the study, with the exception of item number five which showed no change. This may support Dekker and Feijs' (2005) study that indicates that individuals who showed a change in attitude about AFL did not immediately change what they were doing in their classroom practice. During the course of this study, attitudes about AFL definitely shifted, which may have helped to further promote a change in classroom practice to incorporate AFL strategies, as indicated by the increased mean scores on each of the six AFL practice rubric items. In the final learning session, participants expressed that they wanted to continue learning and practicing AFL in their classrooms. One participant stated that as a result of this project they had "…taken on a full course overhaul." When the researcher asked the participants what their next step might be, many expressed that they would like to continue their work as a PLC during the next school year.

Part of the research question was to have participants identify any perceived obstacles or support structures as a result of being a part of structured PLC. Upon reviewing participants' reflection logs the researcher has noted that it is important to recognize that participants valued their involvement in a structured professional learning community focused on AFL as indicated by the responses to item number three on the attitude survey. Item three stated "I do not believe AFL is a worthwhile focus for professional development." The mean participant response was 1.1 (approaching strongly disagree) at the end of the study. Based on the discussions with participants during the learning sessions and lesson debriefs, participants valued the work done in this PLC. One participant posed the question, "When, in our profession, do we get the opportunity to work with like-minded educators, from different schools and grades throughout

the same district, to learn how to improve our practice?" The same participant also commented

that working with secondary science educators was important in order to validate the hard work

and change in practice for them and their colleagues at the middle school level. This individual

was "…relieved to discover that secondary science teachers are interested in changing their

practice to reflect learning rather than grades." Another participant commented on how they

valued the chance to not only discuss and learn about AFL but to see it in action in their

colleague's classrooms. For this participant, watching a teacher experimenting with AFL during

the observation sessions and seeing the students respond was "…key to giving me license to try

something different." At different times throughout the project, there were comments made

regarding the supportive culture of this learning PLC. One participant commented that "This

PLC allowed me to try new techniques in a safe way where results were not always expected, but

rather appreciated." Another stated, "I found this research project to be one of the best

professional development activities I could have partaken in. To have continual support and

feedback was fabulous."

Limitations to the study

There were several limitations to this study that should be noted. The length of time

devoted to this study may not have been adequate enough to allow participants to fully deepen

their understanding of all six of the AFL practices and fully integrate them into their classroom

practice. As Timperley (2008) indicates, "it typically takes one to two years for teachers to

understand how existing beliefs and practices are different from those being promoted, to build

the required pedagogical content knowledge, and to change practice." This is similar to the

findings of Wiliam et al. (2004) as discussed in the literature review of this study. Although the

findings of this study indicate that participants experienced a change in attitude and practice it is

important to recognize that due to the voluntary nature of participation in this study, the participants were most likely individuals who already had some knowledge and practice with AFL and therefore may have experienced different amount of growth than others who would have had no familiarity with AFL prior to the study. It is also important to note that two of the seven participants in the sample were involved in another research group focused on AFL which may have impacted their overall change in attitude and practice of AFL as compared to the rest of the group. The researcher recognizes that the small sample size and typology of the participants may not represent a typical population. The attitude survey used in the study may not have been interpreted in the same way by each of the respondents and may have led to inconsistent findings. Finally, although the reflection logs were reviewed in an attempt to find perceived obstacles and/or support structures as a result of participation in the study, the researcher did not directly ask participants to identify such structures. This may have led to inadvertent omissions by the participants, leading to incomplete findings on this portion of the study.

Suggestions for further research

The researcher recommends that further research continue to determine the extent to which participating in a structured PLC focused on AFL will result in a change in attitude and practice with a larger and more diverse sample. It is recommended that this PLC model be used with an entire school staff or district for at least two years and incorporate all subject areas. It is further recommended that every participant should get the opportunity to work with another teacher to co-plan and co-teach a lesson that integrates AFL strategies. To reduce any potential misunderstanding with respect to the AFL attitude survey, it is recommended that all of the survey items be written affirmatively and each have a Likert scale of 5 (strongly agree) to 1

(strongly disagree). The researcher does not feel that she has a true picture of any perceived obstacles or support structures as a result of being a part of this structured PLC therefore it is suggested that in the future, participants be asked to comment on this directly throughout the study to clearly determine if their involvement in the PLC had any obstacles or supports. This study was conducted at the same time as another study, done by a different researcher, where a PLC made up of Humanities teachers went through the same structured process, using identical instruments. The research question in both studies was identical. It would be interesting to compare the results of these two studies.

Suggestions for school organization

Reeves (2010) states that, "effective professional learning is intensive and sustained, it is directly relevant to the needs of teachers and students, and it provides opportunities for application, practice, reflection and reinforcement" (p.23). It is the opinion of this researcher that the procedure in this study, co-developed by the author along with another researcher, fits Reeves definition of effective professional development. The results from this study clearly support the importance and necessity of establishing structured professional learning communities as a means to shift professional beliefs and instructional practice in order to enhance student learning.

Based on the positive outcomes of this study, the researcher recommends:

1. School leaders create opportunities for on-going, job embedded, structured collaboration in the form of professional learning communities in their school.

2. Professional learning communities should be comprised of teachers who teach a variety of grades of the same subject, along with formal leaders who will learn alongside their teaching teams.

3. The PLC should have an experienced facilitator that can help to guide the discussion.

4. The PLC should follow a structured procedure, as outlined in Appendix B, focused on student learning.

5. The PLC should meet at regular intervals (at least once a month) and be sustained for a minimum of one full school year.

It was apparent to the researcher that the PLC created in this study, was a means of providing on-going, localized professional development and support for teachers adopting AFL practices. It is the hope of the researcher that the procedure provides a structured framework for creating a purposeful, results-focused PLC that can be adopted by any school wishing to enhance student learning.

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Appendix A

Formative Assessment - The Six Big Strategies that Matter
Network of Performance Based Schools, 2008

1. Provide learners with clarity about and understanding of the **learning intentions** of the work being done – this means that learners should be able to tell someone else in their own words what the learning intentions are and how they connect to life beyond school.

2. Provide to and co-develop with learners **the criteria for success**. This means that learners have clear criteria for quality and know what part they are aiming to get better at.

3. Provide regular, **thoughtful feedback** that moves learning forward for the individual learner. This means that, over time, learners get used to knowing how to improve.

4. Design and use **thoughtful classroom questions to lead discussions** that generate evidence of learning. This means that learners practice being ready to think and know that "no hands up" and individual responsibility for thinking about the question are regular parts of learning life. It also means that teachers work together ahead of time to develop really strong questions to use part way through a learning sequence.

5. Put learners to work as **learning/teaching resources for each other**. This means that learners know strategies and have internalized quality criteria so that they can be productive with their same age and older and younger learning colleagues.

6. Do everything you can think of to make sure that **learners are the owners** of their own learning. This means that learners are genuinely engaged in learning and confident that they can learn and think about their own learning.

Appendix B

Professional Learning Community Procedure

MONTH	FOCUS STRATEGIES	Description of activities	
1	LEARNING FOCUS: ➤ Clarifying learning intentions ➤ Design and use thoughtful classroom questions to lead discussions	• 1/2 day (with TOC release) learning session: Project introduction • Assessment For Learning Practice Rubric completed by each team member (baseline assessment) • Assessment For Learning Attitude Survey completed by each team member (baseline assessment) • Outline the purpose of the Network of Performance Based School's Six Assessment For Learning Strategies that Matter. • Learning Focus Strategies: Clarifying learning intentions and designing and using thoughtful classroom questions to lead discussions (Halbert & Winter, 2008). • Technique: i.e. Structured A/B partner talk • Goal /Action: Each participant will set a goal (in writing) for his/her classroom practice explaining how he/she will implement the day's focus strategies into his/her classroom practice.	
2	APPLICATION FOCUS: ➤ Clarifying learning intentions ➤ Design and use thoughtful classroom questions to lead discussions	**1st classroom co-planning, co-teaching and deconstruction lesson**	
		Day one: (1/2 day with TOC release planning session) • Researcher along with two participants co-plan a lesson focusing on clear learning intentions and designing and using thoughtful classroom questions	Day two: (1/2 day with TOC release co-teaching and deconstruction session) • Entire team observes the co-planned lesson with a focus on clear learning intentions and using thoughtful classroom questions. • After lesson: Entire team deconstructs the lesson and then each participant re-evaluates his/her previous goal to make a new action for classroom practice • Goal /Action: Each participant will review their previous goal (in writing) for his/her classroom practice explaining how he/she will implement the day's focus strategies into his/her classroom practice.
3	LEARNING FOCUS: ➤ Developing and sharing criteria ➤ Providing regular, thoughtful feedback	• ½ day (with TOC release) learning session • Learning Focus Strategies Developing and sharing criteria and providing regular, thoughtful feedback (Halbert & Winter, 2008). • Techniques: i.e. T-Square, Concept Attainment • Goal /Action: Each participant will set a goal (in writing) for his/her classroom practice explaining how he/she will implement the day's focus strategies into his/her classroom practice.	

Professional Learning Community Procedure (continued)

MONTH	FOCUS	Description of activities	
4	APPLICATION FOCUS: ➤ Developing and sharing criteria ➤ Providing regular, thoughtful feedback	2nd classroom co-planning, co-teaching and deconstruction lesson	
		Day one: (1/2 day with TOC release planning session) • Researcher along with two participants co-plan a lesson focusing on developing criteria with learners and providing regular, thoughtful feedback	Day two: (1/2 day with TOC release co-teaching and deconstruction session) • Entire team observes the co-planned lesson with a focusing developing criteria with learners and providing thoughtful feedback • After lesson: Entire team deconstructs the lesson and then each participant re-evaluates his/her previous goal to make a new action for classroom practice • Goal /Action: Each participant will review their previous goal (in writing) for his/her classroom practice explaining how he/she will implement the day's focus strategies into his/her classroom practice.
5	LEARNING FOCUS: ➤ Activating students as the owners of their own learning ➤ Activating students as learning and teaching resources for one other	• 1/2 day (with TOC release) learning session • Learning Focus Strategies: Activating students as the owners of their own learning and activating students as learning and teaching resources for one other (Halbert & Winter, 2008). • Techniques: i.e. Exemplars, rubrics, ticket-out-the-door • Goal /Action: Each participant will set a goal (in writing) for his/her classroom practice explaining how he/she will implement the day's focus strategies into his/her classroom practice.	
6	APPLICATION FOCUS: ➤ Activating students as the owners of their own learning ➤ Activating students as learning and teaching resources for one other	3rd classroom co-planning, co-teaching and deconstruction lesson AFL Rubric & Attitude Survey (final)	
		Day one: (1/2 day planning session) ➤ Researcher along with two participants co-plans a lesson focusing on activating students as the owners of their own learning and activating students as learning and teaching resources for one other	Day two: (1/2 day co-teaching and deconstruction session) • Entire team observes the co-planned lesson focusing on activating students as the owners of their own learning and activating students as learning and teaching resources for one other • After lesson: Entire team deconstructs the lesson and then each participant re-evaluates his/her previous goal to make a new action for classroom practice • Assessment For Learning Practice Rubric completed by each team member Assessment For Learning Attitude Survey completed by each team member

Appendix C

Assessment for Learning (AFL) Practice Rubric
Developed by: Lori Hryniuk and Venessa MacDowell

Instructions:
For each of the *Six AFL Strategies that Matter* [1] please rate yourself using the scale provided. The answers will be anonymous – you will put your I.D. # on each page of the rubric. Your information will be combined with other teachers' responses to determine the change in levels of adoption of each of the AFL strategies over the course of this study.

For each of the Six *AFL Strategies that Matter* you will see three corresponding statements.

1. Read the AFL strategy and rate yourself for each of the three corresponding statements.
2. Decide which statement best describes your level of practice and highlight that statement.

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[1] Adapted from Network of Performance Based Schools (2008) adapted from Dylan Wiliam (2006)

AFL Six Strategies that Matter	I haven't tried this yet	I rarely try this	I occasionally try this	I'm well on my way	I do this automatically
1. **Provide learners with clarity about an understanding of the learning intentions and connect learning intention to life beyond school**	I **never** explicitly share the learning intention(s) with each of my classes	I explicitly share the learning intention(s) with each of my classes **once a week**	I explicitly share the learning intention(s) with each of my classes **twice a week**	I explicitly share the learning intention(s) with each of my classes **three times a week**	I explicitly share the learning intention(s) with each of my classes **five times a week**
	I **never** refer to the intention(s) of the lesson with my students	I **may** refer to the intention(s) throughout the lesson	I **sometimes** refer to the intention(s) throughout the lesson	I **often** refer to the intention(s) throughout the lesson	I **continuously** refer to the intention(s) throughout the lesson
	I think that **none** of my students know the learning intentions of my lessons	I think that a **few** of my students know the learning intentions of my lessons	I think that **some** of my students know the learning intentions of my lessons	I think that **most** of my students know the learning intentions of my lessons	I think that **all** of my students know the learning intentions of my lessons
2. **Provide and/or co-develop with learners criteria for success**	I **never** provide and/or co-develop criteria with my students	I **rarely** provide and/or co-develop criteria with my students	I **occasionally** provide and/or co-develop criteria with my students	I **often** provide and/or co-develop criteria with my students	I **always** provide and/or co-develop criteria with my students
	I think that **none** of my students understand the criteria	I think that a **few** of my students understand the criteria	I think that **some** of my students understand the criteria	I think that **most** of my students understand the criteria	I think that **all** of my students understand the criteria
	I think **none** of my students know how to use the criteria to improve	I think a **few** of my students know how to use the criteria to improve	I think **some** of my students know how to use the criteria to improve	I think **most** of my students know how to use the criteria to improve	I think **all** of my students know how to use the criteria to improve

Assessment for Learning (AFL) Practice Rubric p.1 of 3

AFL Six Strategies that Matter	I haven't tried this yet	I rarely try this	I occasionally try this	I'm well on my way	I do this automatically
3. Provide ongoing thoughtful feedback that is specific to the learning intention	I **never** provide thoughtful feedback	I **rarely** provide thoughtful feedback	I **occasionally** provide thoughtful feedback	I **often** provide thoughtful feedback	I **always** provide thoughtful feedback
	I **never** use evidence of student learning to guide my instruction to meet students' needs	I **rarely** use evidence of student learning to guide my instruction to meet students' needs	I **occasionally** use evidence of student learning to guide my instruction to meet students' needs	I **often** use evidence of student learning to guide my instruction to meet students' needs	I **always** use evidence of student learning to guide my instruction to meet students' needs
	I think that **none** of my students know how to improve their learning	I think that a **few** of my students know how to improve their learning	I think that **some** of my students know how to improve their learning	I think that **most** of my students know how to improve their learning	I think that **all** of my students know how to improve their learning
4. Design and use thoughtful questions to lead discussions and generate evidence of learning	I **never** use questions beyond basic knowledge to generate evidence of learning	I **rarely** use questions beyond basic knowledge to generate evidence of learning	I **occasionally** use questions beyond basic knowledge to generate evidence of learning	I **often** use questions beyond basic knowledge to generate evidence of learning	I **always** use questions beyond basic knowledge to generate evidence of learning
	I **never** design high level, thought provoking questions ahead of the lesson	I **rarely** design high level, thought provoking questions ahead of the lesson	I **occasionally** design high level, thought provoking questions ahead of the lesson	I **often** design high level, thought provoking questions ahead of the lesson	I **always** design high level, thought provoking questions ahead of the lesson
	I **never** use a variety of techniques to involve all students in the discussion	I use a **few** techniques to involve all students in the discussion	I use **some** techniques to involve all students in the discussion	I use **many** techniques to involve all students in the discussion	I **always** use techniques to involve all students in the discussion

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AFL Six Strategies that Matter	I haven't tried this yet	I rarely try this	I occasionally try this	I'm well on my way	I do this automatically
5. Put learners to work as learners/teaching resources for each other	I **never** have my students peer assess	I **rarely** have my students peer assess	I **occasionally** have my students peer assess	I **often** have my students peer assess	I **always** have my students peer assess
	I **never** teach my students strategies to effectively peer assess	I **rarely** teach my students strategies to effectively peer assess	I **occasionally** teach my students strategies to effectively peer assess	I **often** teach my students strategies to effectively peer assess	I **always** teach my students strategies to effectively peer assess
	None of my students can use criteria to provide thoughtful feedback to their peers	A **few** of my students can use criteria to provide thoughtful feedback to their peers	**Some** of my students can use criteria to provide thoughtful feedback to their peers	**Most** of my students can use criteria to provide thoughtful feedback to their peers	**All** of my students can use criteria to provide thoughtful feedback to their peers
6. Support students as owners of their own learning	I **never** have my students self assess	I **rarely** have my students self assess	I **occasionally** have my students self assess	I **often** have my students self assess	I **always** have my students self assess
	I **never** teach my students strategies to effectively self assess	I **rarely** teach my students strategies to effectively self assess	I **occasionally** teach my students strategies to effectively self assess	I **often** teach my students strategies to effectively self assess	I **always** teach my students strategies to effectively self assess
	None of my students can use criteria to think about their own learning	A **few** of my students can use criteria to think about their own learning	**Some** of my students can use criteria to think about their own learning	**Most** of my students can use criteria to think about their own learning	**All** of my students can use criteria to think about their own learning

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Appendix D

Assessment for Learning (AFL) Teacher Attitude Survey

(Developed by: Lori Hryniuk and Venessa MacDowell)

Instructions:

Please complete the survey to let us know what you think about AFL. The answers will be anonymous –
you will put your I.D. # on the survey. Your information will be combined with other teachers' responses to
determine teachers' attitudes towards AFL strategies.

For each number you will see a statement, then five bubbles, and then another statement.
1. Read both statements first.
2. Decide which one you agree with most and fill in one of the corresponding bubbles

		Strongly agree	Agree	Uncertain	Agree	Strongly agree	
1.	I think that an essential part of the assessment process guides what I do in my classroom based on evidence of student learning.	O	O	O	O	O	I do not think that an essential part of the assessment process guides what I do in my classroom based on evidence of student learning.
2.	I believe that providing learners with clear learning intentions is an important aspect of lesson design.	O	O	O	O	O	I do not believe that providing learners with clear learning intentions is an important aspect of lesson design.
3.	I do not believe AFL is a worthwhile focus for professional development.	O	O	O	O	O	I believe AFL is a worthwhile focus for professional development.
4.	I think that AFL motivates and engages students in their learning.	O	O	O	O	O	I do not think that AFL motivates and engages students in their learning.
5.	I do not believe that it is important to connect the learning intentions to the students' lives beyond school.	O	O	O	O	O	I believe that it is important to connect the learning intentions to the students' lives beyond school.
6.	I think that providing students with criteria will result in higher quality student work.	O	O	O	O	O	I do not think that providing students with criteria will result in higher quality student work.
7.	I think that thoughtful feedback should be directly related to the criteria.	O	O	O	O	O	I do not think that thoughtful feedback should be directly related to the criteria.
8.	I do not think that "good job" is an example of thoughtful feedback.	O	O	O	O	O	I think that "good job" is an example of thoughtful feedback.
9.	I think that co-developing criteria with my students will result in an increased understanding of the learning intentions.	O	O	O	O	O	I do not think that co-developing criteria with my students will result in an increased understanding of the learning intentions.

Assessment for Learning (AFL) Teacher Attitude Survey (continued)

		Strongly agree	Agree	Uncertain	Agree	Strongly agree	
10.	I believe time spent teaching my students peer assessment strategies is time well spent.	O	O	O	O	O	I do not believe time spent teaching my students peer assessment strategies is time well spent.
11.	I do not believe pre-planning of high level thinking questions is an important aspect of lesson design.	O	O	O	O	O	I do believe pre-planning of high level thinking questions is an important aspect of lesson design.
12.	I think that asking high level questions during a lesson will result in deeper student understanding.	O	O	O	O	O	I do not think that asking high level questions during a lesson will result in deeper student understanding.
13.	I believe time spent teaching my students self assessment strategies is time well spent.	O	O	O	O	O	I do not believe time spent teaching my students self assessment strategies is time well spent.
14.	I think that summative assessments motivate and engage students in their learning.	O	O	O	O	O	I do not think that summative assessments motivate and engage students in their learning.

Appendix E

Reflection Log #1—Learning Focus PLC #1

ID Number: _____   **Date:** _____

Goal:	Action Statement:
1. From now until the next PLC I will provide learners with clear learning intentions in student friendly language and I refer to them throughout the lesson. 2. I will also design and use thoughtful classroom questions to lead discussions.	Between now and the next PLC, I will meet the goal by…

Reflection Log #2—Application Focus PLC #1

ID Number: _____   **Date:** _____

Reflection on goal # 1 and #2.	What worked well…
	What I still need to practice and refine…
	Questions I have or things I am still wondering about…

Reflection Log #2 (cont'd)—Application Focus PLC #1

Goal:	REVISED Action Statement:
1. From now until the next PLC I will provide learners with clear learning intentions in student friendly language and I refer to them throughout the lesson. 2. I will also design and use thoughtful classroom questions to lead discussions.	Between now and the next PLC, I will meet the goal by…

Reflection Log #3—Learning Focus PLC #2

ID Number: _____   **Date:** _____

Goal:	Action Statement:
3. From now until the next PLC I will develop criteria with learners.	Between now and the next PLC, I will meet the goal by…
4. I will also provide thoughtful feedback by being explicit to learners about what criteria was met and not met.	

Reflection Log #4—Application Focus PLC #2

ID Number: _____   **Date:** _____

Reflection on goal #3 and #4.	What worked well…
	What I still need to practice and refine…
	Questions I have or things I am still wondering about…

Reflection Log #4 (cont'd)—Application Focus PLC #2

ID Number: _____   **Date:** _____

Goal:	REVISED Action Statement:
3. From now until the next PLC I will develop criteria with learners. 5. I will also provide thoughtful feedback by being explicit to learners about what criteria was met and not met.	Between now and the next PLC, I will meet the goal by…

Reflection Log # 5- Learning Focus #3

ID Number: _____   **Date:** _____

Goal:	Action Statement:
1. From now and the last PLC I will activate students as the owners of their own learning. 2. I will also activate students as learning and teaching resources for one other.	Between now and the next PLC, I will meet the goal by…

Reflection Log #6—Application Focus PLC #3

ID Number: _____   **Date: _____**

Reflection on goal # 5 and #6.	What worked well…
	What I still need to practice and refine…
	Questions I have or things I am still wondering about…

Appendix F

Lesson Plan for Co-planning & Pre-briefing:

Teacher's intentions:	
Student intentions:	
Lesson number in sequence:	**Task/Assignment:**
Student talk opportunities: structured vs unstructured (Reporting frame)	
Tools/instructional strategies used:	
Assessment method to be used: (summative or formative)	
Student Reflection Talking Frame: (metacognition)	

Appendix G
Classroom Observation

While I am observing the lesson, what new ideas do I have?	
While I am observing the lesson, what am I wondering about?	
While I am observing the lesson what do I notice the learners doing and how they interacting? (Verbal, written, body language)	