Developing formative assessment strategies in the Primary Years Programme

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The aim of this research was to identify and implement key formative assessment strategies that will improve students learning within the Primary Years Programme (PYP). This was achieved through action research on developing and implementing formative assessment strategies in a PYP school in Hong Kong. The research also used an in-depth case study approach on a well-known PYP school in Australia to identify the key formative assessment strategies implemented across a whole school. The research questions explored different formative assessment strategies including stating the learning intention, develop success criteria, teacher questioning and feedback and self- and peer-assessment. The key themes identified in this research build upon the work of Black and Wiliam's (1998b) meta-analysis of formative assessment and Clarke, (2008, 2005 & 2001) and Glasson's (2009) practical approach to assessment strategies that improve student learning. The study recommends what these findings might mean for educators and the IB in their approach to formative assessment. Through this finding, the study also established a link between the different formative assessment strategies and created a 'framework' for how teachers could connect the assessment strategies to ensure the learning, teaching and assessing are interwoven in the classroom.

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Introduction

Typically, any new research in the field of assessment has one common aim; it is focused on how assessment is used to improve student learning. This has a very clear message for teachers, schools and districts; assessment *as* and *for* learning is an integral part of learning and teaching. In recent years, schools have come a long way in their use of formative assessment. It has become an expectation of educators that they understand how to use assessment to improve student learning. However, teachers continue to need professional development to assist them to implement and apply formative assessment in classrooms.

This report aims to contribute to the emerging body of research that focuses on using assessment to improve student learning. Due to the lack of practitioner based research, this study aims to use action research to investigate how teachers can practically employ formative assessment to improve student learning. This report is a part of a PhD dissertation that I am undertaking through Monash University, Australia.

How the study emerged

In my first year teaching at the school where the action research was based, the principal identified assessment and reporting as an area for improvement. I saw this as an opportunity to complete my PhD through an action research project aimed at improving assessment practices within the school. At first the focus for my study was on assessment and reporting more generally. After reading literature in the field, it became evident that my school was not so concerned about reporting, but on how assessment could be used to improve student learning.

In the action research study, I aimed to identify and implement different formative assessment strategies in the classroom to improve student learning through a research project at Matilda International School (MIS) (pseudonym) in Hong Kong. This was achieved through action research in a Year 1 and 6 class, and my own classroom. The case study involved an international comparison between MIS and Western College (pseudonym); a private school in Melbourne, Australia. The aim was to compare MIS' implementation of formative assessment strategies with a school renowned for its innovative curriculum.

Professors Paul Black and Dylan Wiliam synthesised evidence from over 250 studies linking assessment and learning. The outcome was a clear and incontrovertible message: that initiatives designed to enhance effectiveness of the way assessment is used in the classroom to promote learning can raise pupil achievement.

(Assessment Reform Group, 1999, p. 4)

The use of assessment *for* learning or 'formative assessment' as it is known in the International Baccalaureate Primary Years Programme (PYP), is a relatively new phenomenon. It was not until the late 1990's that research began to identify the positive impact assessment could have on learning. Many academics argue that Black and Wiliam's (1998a & 1998b) studies have produced the most influential findings in relation to formative assessment (Glasson, 2009; Popham; 2008; Clarke, 2008, 2005; Miller & Lavin, 2007; Earl, 2003). Commissioned by the Assessment Reform Group (ARG), Black and Wiliam reviewed 250 studies and found that formative assessment improves student learning between 0.4 and 0.7 of a standard deviation (Clarke, 2008). Black and Wiliam's (1998b) 'famous review of the literature' (p. 5) established that formative assessment provides opportunities for students to become life-long learners and achieve higher test results (Clarke, 2005). It is now accepted that effective use of formative assessment can lead to academic gains (Miller & Lavin, 2007). This view led to a push in the United Kingdom (where the ARG are based) and increasingly across the world, to ensure formative assessment receives a higher profile in education (Clarke, 2008). The study also found that formative assessment helps low achievers more than any other student group, reducing the range of achievement in the classroom while raising the overall standards (Black & Wiliam, 1998b).

What is formative assessment?

The Assessment Reform Group (ARG) (2002) defines formative assessment as the student and their teacher using evidence of student learning to decide where the learner is, where they need to go and how they will get there. Clarke (2008) provides a similar definition by stating it as any practice which helps the learner understand how to improve. Both of these definitions acknowledge that, ultimately, the learner plays a significant role in improving their own learning.

Black and Wiliam (1998b) argue that the implementation of formative assessment is not given sufficient focus in the classroom. Although teaching practices may have changed since their study took place, this criticism of the teaching profession is still put forward (Popham, 2008; Earl, 2003;

Guskey, 2003). It has been found that standardized assessment tasks (in particular high-stakes external testing) still play a dominant role in some schools and classrooms, students lack a clear picture of what they are supposed to be learning and teachers use ineffective questioning to illicit responses (Earl, 2003). All of these findings in the literature supported my view that there is a need for more research in this field, particularly offering a practical application to the use of formative assessment in the classroom.

Clarke (2008, 2005, & 2001) and Glasson (2009) have developed Black and Wiliams' (1998b) research into practical strategies that teachers can develop in the classroom. Clarke identified six key formative assessment strategies that can improve student learning. These include:

- *Stating the learning intention;*
- *Developing the success criteria;*
- *Effective questioning to further understanding;*
- *Explicit teacher feedback;*
- *Self-assessment and;*
- *Peer-assessment.*

My research study aims to identify how these strategies can be practically implemented into a primary classroom through an action research project.

Methodology

Multi-method approach

This qualitative study utilized a multi-method approach through the implementation of action research and case studies. According to Miles and Huberman (1994), the strength of qualitative research is the focus on 'naturally occurring events in natural settings,' allowing researchers to understand what 'real life' (p. 10) is like.

Research questions

The central research question for this study was:

- *How does formative assessment improve student learning in the Primary Years Programme (PYP)?*
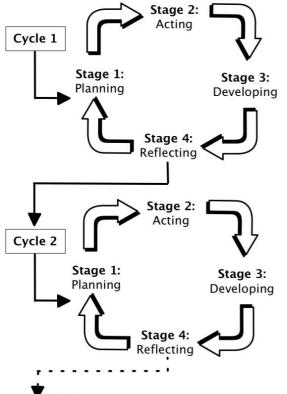
To fully understand this question, there were other essential questions that required investigation, as follows:

- *What are the key formative assessment strategies that improve student learning?*
- *How can the findings and recommendations inform future pedagogy in the PYP?*

Action research at Matilda International School:

As a classroom teacher at MIS, it was clear to me that there was a need for teacher professional learning in the area of formative assessment. The school had a traditional approach to assessment with summative grading and testing being the dominant assessment methods. Formative assessment was not discussed at curriculum meetings and was not a major focus within the teaching and learning of the classroom. I saw there was a need to improve assessment practices within the school. Action research provided the methodology to achieve this by working with colleagues on an in-depth project on formative assessment. This study aimed to bridge the gap between theories on assessment and the day-to-day practicality of what goes on in classrooms (de Zeeuw, 2003).
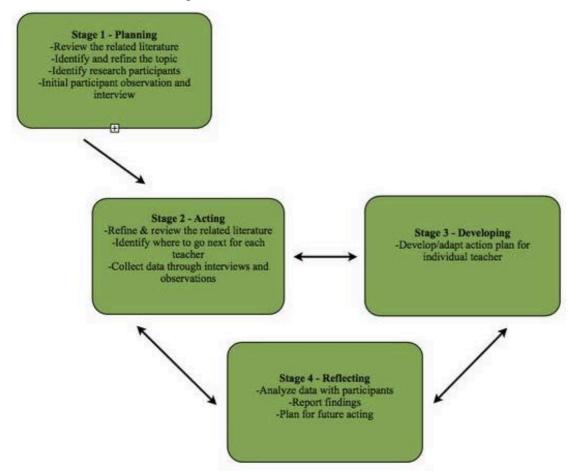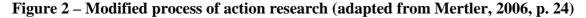
The action research process

Cyclical process of action research continues...

Figure 1 Process of Action Research (Mertler, 2006, p. 24)

I adapted and modified Mertler's (2006) process for action research (*Figure 1)*, to suit the process for my study. *Figure 2* shows the process for action research that I implemented during the action research of this study involving planning, acting, developing and reflecting. During the data collection, I moved through stages 2, 3 and 4 on many occasions. Johnson (2005) argues that action research is a fluid process, which allows for each teacher to be at different stages of the process. Through observations and discussions, I monitored the development of each teacher's use of formative assessment strategies, and collaborated with them to modify and implement the different formative assessment strategies.

Figure 2 – Modified process of action research (adapted from Mertler, 2006, p. 24)

The choice of qualitative methodology

Through the use of qualitative methodology including semi-structured interviews, observations, and my own involvement in the action research, the teachers I worked with were able to use and develop formative assessment strategies in their classrooms. Berg (2004) points out that a range of approaches are needed through a systematic approach of gathering data about the research

phenomenon so that it can be understood how it operates and functions. The justification for using action research was based on the study aiming to improve the use of formative assessment at MIS. In view of that, this study was implemented to bring about a deeper understanding of the practical application of formative assessment strategies in the classroom, which may provide further insight for other educators.

Profile of Matilda International School

MIS is an international school in Hong Kong where I was employed as a Grade 1 classroom teacher during the action research project. MIS was established in 1991, and is now considered one of the leading international schools in Hong Kong. In April 2009, the school became a fully authorized IB World School offering the Primary Years Programme (PYP) and the Diploma Programme (DP). At the end of 2011, MIS was also authorized to offer the Middle Years Programme (MYP). Being an authorized IB school is a significant factor for this study. The IB sets the curriculum framework, which the school is required to implement. This framework, which determines teaching, learning and assessing, impacted how this study moved forward. MIS, and in particular the Head Master and Lower School Principal, were supportive of the research taking place in the school as long as it aligned with the school's assessment policy and the IB's philosophy on assessment outlined in the Standards and Practice (IBO, 2005).

Participants involved in the research

Two teachers and eight students chose to participate in the study. Year 1 teacher Linda (pseudonym) had been teaching at MIS for four years when the study began. There were four Year 1 students from Linda's class who participated. Their names were Isaac, Hamish, Sarah and Sam (pseudonyms). The second teacher, Denise (pseudonym), was a Year 6 teacher who was into her third year at the school. There were four Year 6 students involved in the research. Their names were Robert, Rodney, Grace and Abby (pseudonyms).

Data collection during the case study

After data collection at MIS and the analysis had been completed, the study moved into a case study school. Yin (2009) argues case studies provide an in-depth analysis of a particular area or interest. After establishing the teachers' and my own understanding of formative assessment, I wanted to see a comparison from a school known for its innovative curriculum that would give context to where MIS was in their implementation of formative assessment strategies.

Profile of the case study school

The case study school is a well-known co-educational independent school with three campuses across Melbourne. The school, named here as Western College, is one of the oldest schools in Melbourne, providing education for students from pre-school through to Year 12. The campus involved in this study is situated 20 kilometers west of the city and has approximately 1200 students across its primary and secondary campus.

The school was selected as suitable for comparative purposes as it began the PYP journey in 2004 by becoming a candidate school and then a fully authorized PYP school in 2007. It has a well-known reputation in Australia and in the Asia-Pacific region based on their assessment practices and their rigorous and innovative curriculum. In particular, the PYP coordinator came highly recommended for the curriculum work she had done at the school.

Participants involved in the study

Three teachers and the PYP coordinator chose to participate in the study. Rachel (pseudonym) taught Grade 1, Justine (pseudonym) taught Grade 3 and Wendy (pseudonym) taught Grade 5, at the time of the study. Jessica (pseudonym), the PYP coordinator did not have her own classroom but was able to provide an overview of the implementation of formative assessment at Western College.

Thematic analysis

Thematic analysis 'is a method for identifying, analyzing, and reporting patterns (themes) within data' (Braun & Clarke, 2006, p. 6). It minimally organizes and describes data set in rich and in-depth detail. Boyatzis (1998) argues that it goes beyond this as it interprets different aspects of the topic of research. This research investigated the key themes of formative assessment identified in the literature review. These included, stating the learning intention, developing the success criteria, effective questioning to further understanding, explicit teacher feedback and self- and peer-assessment.

Findings

This study arrived at several important findings on how formative assessment is implemented at MIS and Western College and what the implications are for other schools, since many of these strategies could be implemented across PYP and non-PYP schools. The findings are drawn from the action

research at MIS and the case study research conducted at Western College. The findings are based in two essential questions that were identified to assist with answering the key question: 'How does formative assessment improve student learning in the Primary Years Programme (PYP)?' The first of the two essential questions explored was:

What are key formative assessment strategies that improve student learning?

The formative assessment strategies investigated in this research were developed by Glasson (2009) and Clarke (2001, 2005 & 2008). These strategies were adapted and modified to suit the relevant class and context in which they were implemented. Below are the results of the research on strategies being implemented and observed across two PYP schools.

Stating the learning intention and developing the success criteria

Matilda International School

Clarke (2008) and Glasson (2009) argue that sharing the learning intention is a key element to formative assessment in classroom teaching. Glasson (2009) contends that:

> *Framing a learning intention and then sharing that with students is a very powerful way for teachers to improve their learning in their classrooms. The establishment of a learning intention is the basis of everything that follows in the lesson or series of lessons* (p. 10).

During the research collected at Matilda international school, the time invested in stating the learning intention was evidently beneficial to student learning throughout the lesson. In the lessons observed in Linda's Year 1 class, it was evident the students were well versed in using learning intentions and success criteria for their learning with 'Walt' the puppet (we are learning to…) as the learning intention, and 'Wilf' the puppet (what I am looking for…) (Clarke, 2008) as the success criteria. When Walt was introduced during the lesson, the students called out in unison 'we are learning to…' These two puppets are regularly used as a visual reminder for early years students to assist with remembering what they are learning and what steps they need to take to be successful. Linda found it to be a very effective tool for students to stay on task during a lesson. It helped them in understanding what they were supposed to be learning and this gave students the focus they needed.

Although Clarke (2008) developed the Wilf and Walt characters, she now argues against the use of puppets for the success criteria stating:

> *'Wilf was a bit of a disaster - it meant teachers were giving children the success criteria instead of asking children to generate them. It made children think, 'This is about doing what the teacher wants us to do.'* (Ward, 2008)

Clarke was concerned that the teachers were thinking for the students by telling them what the success criteria are. Glasson (2009), Clark (2008) and Sadler (1998) argue for formative assessment to be at the forefront of the lesson. This allows students to take ownership of their learning and it becomes very clear what they are being assessed against. In the lessons with Linda, the students were clear about what they were learning. When I spoke to Sarah about what helps with her learning, she said having the 'things I need to do are written on the board'. This is the success criteria that Linda wrote on the board for each learning intention she had.

Success criteria in my classroom

Developing the success criteria became a regular part of my own class practice, in particular with our writing genres. As a Grade 1 team, we decided on checklists as the most effective tool for students to assess their own learning alongside the teacher. (See *Figure 1: Examples of success criteria* which outline four different genres developed and created by the students during each unit of inquiry). Each checklist followed a guided process that the Grade 1 teachers went through with their students. When each genre was introduced to the class, we spent one or two lessons investigating a range of approaches to that genre being written in different ways.

Students felt confident assessing their own learning, because they had been involved in the process from the start of the unit. Other assessment strategies followed with the success criteria set up, including teacher feedback and self and peer-assessment, which aligned with Glasson's (2009) views on the importance of stating a clear and explicit success criteria since they 'are the linchpin for assessment for learning' (p. 37).
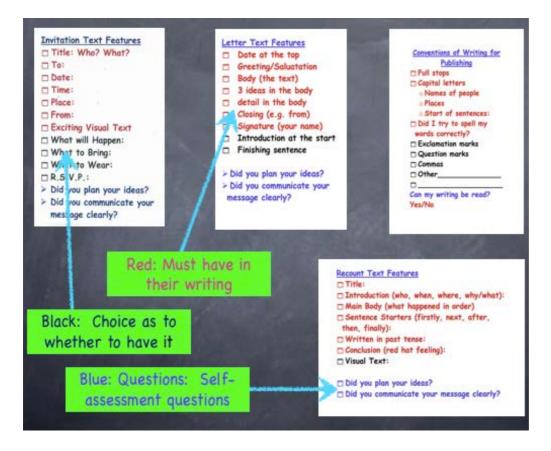
Figure 1 – Examples of success criteria

Western College

The use of learning intentions and success criteria at Western College utilized a much more strategic approach. Three years prior to the data collection at Western College, Justine was acting PYP coordinator and used this opportunity to implement the learning intentions and success criteria. As a result of this, learning intentions and success criteria were more evident throughout the school, allowing for consistency between classes. Although Justine was not the PYP curriculum coordinator at the time of implementation, she observed the effect that introducing and planning the learning intentions had on the teachers:

> *When learning intentions were introduced, it was a very powerful 'ah ha' moment for many teachers. It was embraced and I think once they saw that it had a powerful spin off in terms of the students being able tune in and know what the lesson was about instead of keeping the students in the dark. Teachers could really see the value of it.*

Although Justine introduced the concept of learning intentions and success criteria to the staff, by her own acknowledgment, her perspective of how to use learning intentions has progressed to a new

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understanding that looks beyond just telling students the learning intention at the beginning of a lesson. Justine believed that always telling students the learning intention at the start of a lesson can limit some students' thinking, thereby preventing them from developing their own understanding of a lesson which would require a higher level of thinking. She commented that:

> *If you don't allow the children to connect the dots and in a sense come up with their own learning intention, you do not give enough an opportunity for higher order thinking.*

Justine is attempting to ensure her students are given the opportunity to use higher order thinking skills. Encouraging students to create the connection between the activity and what it is they are learning encourages them to realize the purpose of their learning and also allowing for a differentiated curriculum as students might make different learning connections in the lesson. This would be particularly effective in a concept-driven curriculum like the PYP.

Effective questioning to further understanding

Matilda International School

Teacher questioning plays a significant role in a PYP classroom. The PYP planner requires the key teacher questions or provocations to be developed before the unit begins and documented in section 2 of the planner. Due to the design of the planner, many PYP schools have already worked on designing key teacher questions. For this research I focused on the use of 'dialogic talk' as a way of exploring the key questions.

The role of 'partner talk' during teaching questioning

During the planning meetings, I encouraged both Linda and Denise to introduce what Alexander (2004) determined to be 'dialogic talk' and what Clarke (2008) phrased as 'partner talk' (p. 35). This involves students discussing their answers to an open-ended question with a peer before sharing their answers with the class, giving all students a chance to participate in answering a question and dealing with any misconceptions that may exist. During the lessons where this was implemented in both the Year 1 and Year 6 class, engagement levels lifted and more students became involved in discussing and thinking about possible answers. The behaviours of students observed during the dialogic talk included students discussing at a frenetic pace answers to questions they were interested in answering; correcting each other's misconceptions; listening and building upon each

other's answers; and almost a 100% participation rate from students almost all of the time. Building upon each other's answers provided great insight into how students support each other's learning. When a student was unsure of an answer, they would listen to their partner to see what ideas they had. In some cases, students also built upon each other's thoughts and ideas by either coming up with a new idea or improving on their partner's idea. In Linda's class, Sam reflected with the class that this was very helpful for him because, 'somebody has different ideas from your work and they can explain it to you and then the work (ideas) becomes even better than before'.

Linda believed the purpose for the dialogic talk was so, 'everyone gets a chance and everyone gets a chance to talk. And also, when students are talking directly with somebody else, they get new ideas themselves'. Linda noted that when she implemented the dialogic talk, she asked fewer questions, a habit she knew needed improvement. By asking less questions, Linda believed the quality of her questions improved and became more open-minded because she 'wanted students talking with each other and you don't really get that with one word answers'.

Denise tried two strategies to improve her questioning of students: one was allowing for waiting and thinking time; and the second was involving students in dialogic talk, as discussed by Alexander (2004). This would mean students are involved in 'active learning' (p. 2) whereby students discuss their answers to teacher questions before calling upon another student to give their answer (Clarke, 2008). After a couple of lessons with the active learning, which included one observed lesson and Denise's anecdotal evidence of other lessons, Denise was pleasantly surprised by the student response. She found giving students more time to answer her questions challenging. It was difficult to resist the urge to move onto another student or answer the question herself. When Denise did wait, she felt the answers from the students were more 'interesting' and the reluctant students were more likely to answer her questions instead of waiting for her to move on to another student. She immediately became aware of higher participation rates among the students when she gave them the opportunity to discuss their answers with somebody else.

Student perspective on 'partner talk'

Towards the end of the data collection, I spoke with the students about how talking with a partner benefits their learning and the students offered interesting perspectives. A short conversation with Isaac and Hamish offered differing thoughts on the benefits to peer-assessment,

Hamish: The reason we have partner talk is it helps us is if the answer is not good, you listen to another answer from someone else and you are going to have a different idea while you listening to someone.

Interviewer: Because you are going to get new ideas?

Hamish: Yeah, from the other person.

Isaac: Sometimes, if you have a bad idea, someone can tell you a good idea but sometimes, we don't want to use their idea because it is theirs, so it helps with us with another idea of our own.

Both students saw the benefit to this approach but through different perspectives. The focus was on building upon the ideas that another student had. According to Clarke (2008), involving students in active learning is imperative to the success of formative assessment through 'engaging in a constant process of considered review of success and improvement' (p. 2).

Sarah discussed the importance of body language when listening to someone saying that 'you have to listen, you have to have eyes watching the speaker so you can listen better because if you face the other way, you cannot really hear facing backwards'. When Linda had set up her partner talk, she had been very clear with the expectations of how students should talk with each other and this had resonated with Sarah. Clarke (2008) argues that setting clear expectations is imperative to the success of partner talk.

Teacher feedback

Matilda International School

Planning and identifying the type of effective feedback Denise and Linda were to use in their classrooms was the most difficult strategy to plan for during this action research. As feedback is identified as immediate information that is specific to an individual student related to their learning (Tomlinson & McTighe, 2006), it was challenging to identify what feedback would be needed during the lessons. Therefore, the majority of the focus for planning discussions was not on *what* type of feedback students might receive, but *how* the feedback might be given to them.

In the classroom, most of the feedback Linda gave focused on the learning intention and success criteria. She was conscious of the difference between feedback to improve learning and managerial feedback used to monitor the class. Clarke (2001) identified concerns with teachers who would share the learning intention with the class and develop the success criteria but then the feedback they

would give related only to presentation, surface features of writing, quantity and effort. It is this traditional approach to feedback that prompted the research into how feedback is given to students to improve their learning.

As Linda had shown a thorough understanding of how to give feedback to the students, not a lot of time was spent planning for feedback. However, as feedback was being used by Linda in every lesson observed, there were plenty of opportunities to observe how she used feedback wither her students. During some of Linda's lessons, the learning activity began with her using Wilf, the learning intention puppet, to give feedback aloud to the whole class related to the success criteria. This was achieved by finding a student who was performing according to the learning intention and success criteria and telling the whole class how this student was successful. Linda noted that this was done to ensure the students were aware of exactly what she was looking for in their learning:

> *When I gave feedback loud enough for everyone to hear related to the success criteria,*
> *the students knew what I was focusing on. So they would focus their work on what I was*
> *talking about out loud. This made me realise every time I gave unrelated feedback to*
> *one student, all the students were listening and reacting to that feedback.*

Any managerial feedback given during the lesson was done in a quieter voice so that only the student concerned could hear her. Linda used this approach so she did not distract other students from their thinking, as she was aware students can get caught up in irrelevant feedback. Clarke (2001) identified this as important.

After giving general feedback to the class, Linda would then focus on giving explicit feedback to individual students. When Linda did give feedback individually, she focused on the strategy that was discussed during the initial interview. Linda first started with something she liked about the student's work, which was related to the success criteria. Then she would give a piece of feedback about their learning through questioning the student about how they could improve. An example of a particular interaction between Linda and a student is as follows:

Linda: Tell me about your picture.
Student: I made a big sausage tongue.
Linda: That is an interesting way to show a big body part. I like the way you made the tongue as your big body part. What colours have you used in your picture?

Student: Red and some pink. And some brown.

Linda: Looking at list on the board, are there any changes to the colours you think you need to make?

Student: (student thinking) *umm, maybe the colours should be darker.*

Linda: What kind of colours are you thinking of using?

Student: I might put some black here (pointing to the face) and brown here (pointing to the body).

In this small extract, Linda used three questions to help the student move forward in their thinking. The feedback was direct, immediate, and constructive without being negative or critical of the decisions the student had made with their learning (Glasson, 2009). When Linda walked away from this student, the student began to focus on the area of discussion and went to look for a brown and black colored pencil. It was the student who made the suggestion for improving his work, not Linda, which can be seen as the beginning of moving from feedback to self-monitoring.

Although much of the literature focuses on feedback and questioning as different strategies of formative assessment, Linda identified how powerful questioning as feedback is for students to extend their own thinking:

> …*by asking students where they think they need to improve instead of me telling them, the students are more likely to connect the dots between their own learning. It forces the student to do the thinking and it is a very simple strategy for the teacher to just ask instead of telling.*

Western College

From a whole school perspective at Western College, Jessica believes teachers are beginning to realise that there is little value in teachers correcting student learning at home and expect it to have impact on learning in the classroom;

> *Our teachers are beginning to realise that there is no point sitting at home writing comments on work and expecting there to be relevance when it is handed back to the student. Feedback is in the here and the now, needs to be individualised and targets and focused for that child.*

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Teachers' responses to questions about teacher feedback pointed to a strong understanding. It was highly regarded as an important strategy by all participating teachers. More examples of how teachers have used feedback were given during the interviews than for any other strategy. Justine noted that she had a suggestion from one of her students that if a student has a 'fantastic idea', Justine should share it with the whole class so that other students could learn from each other. Although Justine acknowledged that this would not work all the time, she particularly liked this idea because this student was identifying a strategy that is going to assist with whole class learning. She believed it had an element of teacher feedback and peer-assessment.

Justine's feedback can be seen as what Clarke (2003, p. 55) calls 'celebrating challenge'. Justine's feedback reveals that she embraces students being challenged and avoids the comparison of students. In the classroom, Justine attempts to use her feedback as guidance. During the observations, Justine's feedback was not explicit (telling students what the next step was), but rather she chose to use guiding questioning for students to determine themselves where they needed to go next in their learning and how to get there. Questions like *what do think comes next, why have you put that there, what do you think of ...* encouraged her students to determine the next steps in learning. Much of the research on feedback discusses the importance of ensuring students know where they are and where they need to go, but very little research discusses *how* teachers need to get students to the next level of their learning. Both Linda and Justine chose to use guided questioning to extend students, which Justine believed develops higher order thinking skills as students are forced to think for themselves. Justine put emphasis on *how* that feedback was given. Although limited research exists on the *how* part of giving feedback, Wiggins (1993) argues that teachers need to think about their approach to how they give feedback to students. Justine's approach to feedback offers an interesting consideration for future research in this area.

Wendy, who does a considerable amount of marking student learning at home, has changed her approach in recent years. Although Jessica believes teachers are not correcting student learning as much at home, Wendy still sees the value in doing so. Wendy does prefer to give immediate feedback to the students orally so that it is 'instant'. But like many of Wendy's approaches to teaching, she takes a pragmatic view. Wendy has a class of 26 students and accepts that she cannot always give the required, immediate feedback the research recommends (Glasson, 2009; Clarke 2005 and Black & Wiliam, 1998b). While Wendy acknowledges that this it is not the ideal feedback for students, she attempts to make effective use of the feedback she gives at home. When marking or correcting away from the students, Wendy makes a comment on one area that was successful, one

area that requires improvement and a comment of encouragement. She then attempts to get the feedback back to the students as soon as possible and provide time for students to read her comments

Self-assessment

Matilda International School

For self-assessment to be successful, Linda argues that:

> *The kids are involved in the assessment process so that they can have an input as well into what the success criteria is, so that they feel more a part of being clear on what their goals are and what (the) criteria is and they have more responsibility over their learning.*

Linda makes the important connection between self-assessment and the success criteria. Involving students in the assessment process needs to begin at the start of the lesson/unit by sharing the learning intention and developing the success criteria as a class through the analysis of the task. If students understand what they are being assessed against and what it looks like, they can assess their own learning.

Linda had not used a lot of self-assessment with the students in Year 1, so she used this research as an opportunity to explore how to implement it. After planning for students to self-assess, she was pleasantly surprised by what they could achieve:

> *Students responded well to the self-assessment. They were questioned according to the checklist. "Have a look at your work. Did you include…" Then (they) had an opportunity to make changes to their work. 100% of students made changes and said that they liked having the chance to review their work and make it even better.*

During the observation of self-assessment, many students did make changes to their scary picture when they were given the opportunity. Linda acknowledges that this self-assessment was very scripted and given to the students in a step-by-step process, but she believes students assessing their learning should be explicitly taught. During the self-assessment time, I spoke with Hamish in Linda's class about how he might improve his character and his thinking was related to the success criteria:

Interviewer: Hamish, what can you do to make your character a bit scarier?

Hamish: *I could use some more dark colors.*

Interviewer: Ok, so a bit more dark colors. What dark colors are you going to choose to use?

Hamish: *Brown, dark green.*

This discussion shows that because the students were involved in the development of the success criteria, they found assessing their own learning manageable. Importantly Linda gave students time to improve their learning as a part of the self-assessment process. Clarke (2001) and Glasson (2009) both argue that students need to be given the time to go back and improve their learning. By teaching self-assessment explicitly at a young age, it becomes a part of the meta-cognitive thinking of a student when they are older and, therefore, allocating self-assessment time is not needed as it becomes a part of the student's thinking during their learning.

During the plenary discussion, Linda asked the students if they thought it was helpful to go and look at the checklist to see if their learning matched the criteria. Most of the students felt that it did help. When asked why, one student commented to the class that, 'sometimes you forget what you did and you get to look at it again'. Even at a young age, students through their own understanding can see the benefits to formative assessment and in particular, self-assessment.

Western College

At Western College, Jessica believes that self-assessment has been incorporated effectively into the teaching, learning and assessing for most classes. There was built in reflection time for students to encourage them to think about what they have learnt and how they could improve their learning. Scott (2000) argues that students need to explicitly learn how to think about their thinking; a critical part of self-assessment. This should go beyond the cognitive development and also include reflecting on attitudes and affective behavior. For Western College this opportunity was to be achieved through self-awareness and reflective skills developed in reflection times that Jessica mentioned above. The teachers spoke more about the use of self-assessment than peer-assessment during the interviews. During the observations, some reflective strategies were used by Justine and Wendy in their classrooms, with Justine having her students reflect upon how well they worked with their partner and Wendy having her students rate their performance and level of learning for a particular lesson. This limited use of reflection in the classrooms could possibly be because teachers are not making the connection between assessment and reflection, or that it is not as frequent as

Jessica believed. Self-reflection plays an important role in helping students move from teacher feedback to self-monitoring (Sadler, 1998).

Wendy identifies self-assessment as a skill to help students become life long learners. She believes,

> *If you don't reflect upon what you have learnt, then it is rote learning and I don't believe*
> *that (is) the way we want students to grow up in the world.*

Wendy discussed a range of tools that she uses with the students to encourage the meta-cognition of reflecting on their learning and how they are learning. This included an informal check at the start and end of lessons using a number system (1 means I completely understand, 5 means I don't understand at all), think, pair and share, 3 facts, 2 understandings and 1 connection and rating their learning at the end of a unit or lesson. Earl (2003) argues students need to be engaged in meaningful self-assessment for them to become 'self-starting and self-motivated lifelong learners' (p. 101).

Peer-assessment

Matilda International School

Before this action research study, Linda had not put much focus on peer-assessment working with Year 1 students. Linda stated that developing the peer-assessment strategy for the action research would be one of the few times this year where students had been involved, so this strategy would require explicit teaching. During the first lesson on using peer-assessment with this cohort of students, Linda explicitly modelled the step-by-step process of how the peer-assessment would be implemented. This involved having students swapping learning and commenting on their peer's work relating it to the success criteria. Linda supported the students by providing sentence starters (i.e. 'I really like how you…' 'you could add … to make it ...'), reinforcing the learning intention and success criteria to remind students where their feedback should be focused. Although this was a new formative assessment strategy for the students, it still proved effective, as many students took on board the improvements that were suggested to them. As Linda stated:

> *When asked if they (the students) found it useful or helpful to have their friend check*
> *their work and make suggestions, all students said that they liked it and that it helped*
> *them to improve their work. About 90% of students made changes to their work after*
> *getting feedback from their partner.*

As a result of this, Linda found the peer-assessment to be very effective:

> *The fact that all students said that they liked getting the chance to check their work or have someone else check their work and the fact that they all made changes/improvements to their work at some point, demonstrates that the questioning and feedback (from their peers) helped students to deepen their understanding and improve their learning.*

Many of the students giving feedback effectively explained what could be improved. When Sarah was looking at her partner's learning, she explained to her partner *I think you need to add a bit more black or something and make it a bit more dark,* which was related to the success criteria for the lesson.

At a young age, the students in Linda's class could see the benefits of having a peer give feedback on their learning. Clarke (2005) argues the benefit to this type of peer-assessment is that students take constructive criticism more freely than the traditional teacher-student discussions. Linda agrees with this as she stated, 'I think it is valuable because they do learn a lot from each other and they speak differently to each other and respond differently…'

As a part of using peer-assessment in my classroom, I would have a discussion with students at the start of the lesson about whether the answers would be the same as their peers (closed questions) or different (open-ended questions). This helped students determine the type of feedback they would give to their peer during the lesson. For closed questions (i.e. mathematical equations) I regularly asked students to compare their answers to a peer's work to see if they had the same answers. In this process, students would explain to each how they came to the answer. This was particularly important for students who got the answer wrong as they had someone to explain the correct answer. For open questions during writing lessons, I would ask students to read their piece of writing to a peer and use 'two stars and a wish' to provide feedback. This involved commenting on two areas the peer did well and one area they could improve and importantly *how* they could do this. This was most successful when the success criteria had been set up so the students knew what feedback to give. Peer-assessment was also successful for student performances and presentations. By having the success criteria clear to the students they knew what the focus of the presentation was, whether it was how they presented, or the content they presented.

Students' perspective on peer-assessment

Introducing the peer-assessment in Denise's class shifted the mindset of some of the students in the short term. In particular, it helped the students think about what are the benefits and the challenges of learning alone and learning in groups or pairs. For peer-assessment to be effective long term in the classroom, Denise would need to incorporate it as a regular part of the school day. This could be achieved by setting up clear expectations of what constitutes collaborative learning and how it might work in the classroom. Sarah also believed it was of a similar benefit as she said 'when they (peers) look at your work, they might see some things that you might do better.'

Interestingly, when I spoke with the participating students after the same lesson, Linda had reflected with the class about peer-assessment, the use of peer-assessment was still strong in their minds. I asked a general question about what helps their learning and Hamish said that 'trying it (the activity) and trying it again' would help him with his learning. Prompting Hamish further, I asked him what would help him the second time when trying the activity. After giving Hamish some thinking time, he paused for a moment and said 'you could ask someone at your table'. I asked Hamish why he said that would help and he commented that 'we just look at each other's work'. This conversation came shortly after Linda had implemented peer-assessment in her class and it appeared Hamish reflected upon this strategy and found it had benefitted his own learning. Similarly, Isaac found 'talking to somebody about it' helped him with his learning, and Sam commented that he likes it '…when Mrs Holmes partners me up with somebody so I can talk about my ideas'. At such a young age, these students are already beginning to internalise the benefits of peer-assessment.

Other factors impacting on peer-assessment were the effectiveness of modelling peer-assessment to students and the class environment which creates an atmosphere allowing students to feel safe to have their learning critiqued by a peer.

Discussion and recommendations

After the data collection and analysis of MIS and Western College's formative assessment practices, it became evident that formative assessment was most effective when entwined with the teaching and learning, and therefore became a part of the lesson. Below is a table that outlines the findings from the study. It captures the research from MIS and Western College bringing together all the formative assessment strategies that have been the basis for this study. This framework is built upon the

practical strategies developed by Clarke (2008, 2005 & 2001) and Glasson (2009), and influenced by Black and Wiliam's (1998b) initial research on formative assessment. The table provides a possible framework for improvements in schools' planning and implementation of formative assessment.

Formative assessment strategy	Planning	Activity	Perceived benefit for student learning
Learning intention	Establish the learning intention prior to lesson beginning.	Introduce the learning intention after engaging students with a discussion about the knowledge/skill/concept being covered. The length and type of lesson would determine how the learning intention was introduced.	Students understand what they are learning (Glasson, 2009 & Clarke, 2001).
Success criteria	Develop the success criteria in basic form prior to the lesson beginning (Clarke, 2008) Establish what guidance students many need to develop the success criteria (Glasson, 2009)	Develop success criteria with students through the analysis of the learning intention. This is done through exemplars (both successful and unsuccessful pieces of learning).	Students understand how to be successful in their learning (Glasson, 2009 & Clarke, 2001).
Teacher questioning	Develop the key questions required (normally one or two open-ended questions). Establish questioning strategy.	Give students opportunity to explore the key questions through wait time, think time, Partner talk (Clarke, 2005), think/pair/share and discussion lines (Glasson, 2009.	Student understanding will be furthered through questioning; answers possibly longer and more creative; students build understanding upon other student's answers or alternative explanations offered (Glasson, 2009).
Teacher feedback	Plan how the teacher feedback may be given to students. This is done with the flexibility to change through the lesson, depending on how well students are	At the beginning of the task, the teacher gives just general feedback to the class related to the success criteria so that everyone knows what the teacher is expecting in their work. The early feedback in the lesson is predominately verbal and loud to	Students receive the immediate and direct feedback needed to be successful in their learning. Strategic and guided questioning gives students opportunity to

	learning	ensure other students hear it (not just the student being spoken to). Specific oral feedback given to students one-on-one who need it. Feedback given through questioning. Start with a positive of their work and then question them about areas they could improve on.	determine the improvements they believe their learning needs.
Peer-assessment	Teachers decide how students are going to plan for peer-assessment (i.e. two stars and wish, checklist, rubric, oral feedback)	Students give their learning to the student next to them who offers suggestions in relation to one part of the success criteria. The peer then communicates the area they believe could be improved. Students are given time to make any changes. This process has either been taught as previously to the lesson or will need to be taught as a step-by-step process.	Students assist their peers in how to improve their learning, therefore may find ways of improving their own learning. Students are given the time to act upon this feedback.
Self-assessment	Teachers decide how students are going to plan for self-assessment. Could be planned for either formally assessing (i.e. performance descriptors, checklist or rubric) or informally (look at their work related to the success criteria (Glasson 2009).	Similar to peer-assessment, students look at their own work in relation to the success criteria and decide where they think they could improve their drawing. Students are given time to make any changes. This either has been taught as or will need to be taught as a step-by-step process.	Students given time to check their learning against the criteria to see where they can improve their learning. Clear success criteria offers students the best opportunity to do this (Glasson, 2009 & Clarke, 2001)

These formative assessment strategies within the framework aim to build upon each other. For example, stating the learning intention allows students to develop the success criteria. Developing the success criteria gives purpose to self- and peer-assessment. Having a clear learning intention and success criteria provides the necessary focus for the teacher to give effective feedback. This framework for formative assessment could be implemented through one lesson, a series of lessons or through a whole unit of inquiry. This ensures that the teaching is focused on learning at all times.

It is important to acknowledge that this table is a suggested framework for implementing formative assessment strategies effectively in classrooms. Clarke (2008) raises the important argument that

formative assessment does need 'specific techniques' while at the same time allowing for 'experimentation and development' (p. 2). Formative assessment requires constant flexibility and re-evaluation of the student needs at each moment. This framework provides a guide for teachers and is not to be followed without consideration for what best supports the learning at the time. Each teacher in their own classrooms is the best judge of how much of this framework will guide their practice.

This multiple layer of formative assessment involving aligning teacher feedback with peer and self-assessment could begin a new approach to implementing and developing formative assessment strategies. If teachers are looking for connections between the different strategies, they are more likely to have a bigger impact on student learning than planning for formative assessment strategies in isolation.

How can the findings and recommendations inform future pedagogy in primary years programmes?

Recommendations for educators in PYP schools

All participants in this study acknowledged that teachers need a thorough understanding of formative assessment to effectively entwine these strategies with teaching and learning. Participants believe that it is up to both the school to provide support for teachers to improve their knowledge and understanding of formative assessment, and importantly, for teachers to seek their own professional development understanding of the benefits to formative assessment. But for teachers to do this, they need to believe that formative assessment will improve student learning. PYP coordinators, with the support of their principals, need to ensure that teachers have access to practical strategies to implement formative assessment and also providing professional development that will help build their understanding. From here, teachers can then begin to see the effectiveness of using the key elements identified in this summary (learning intentions, success criteria, teacher questioning, feedback and peer- and self-assessment), which will lead to an improvement in student learning.

Recommendations for the IB

Many of the educators involved in this study acknowledged that much of their understanding had come from working in an IB World School. The IB must be credited for changing the way in which teachers regard the purpose of assessment, in particular identifying the difference between summative and formative assessment and how they are used in the classroom. However, from my

observation in the two schools of this study and further discussions with other PYP teachers, there is a concern that the PYP planning document has a 'perceived' stronger emphasis on summative assessment than it does on formative assessment. Although the intention is not for teachers to spend more time planning their summative tasks as opposed to formative tasks, many teachers believe that they do not have enough time to plan the formative assessment tasks, because they get 'stuck' trying to find a summative assessment task/s that best fits the central idea. Currently teachers should not move from section 1 and 2 on the planner until they have the summative assessment task/s decided. If teachers have established the *big ideas* (central idea and lines of inquiry) and the *evidence* that will show student understanding in a backwards by design approach (Wiggins and McTighe, 2005), teachers should then move to the next section of the planner. This would mean teachers do not get stuck deciding on the summative assessment task/s. This will ensure teachers have time to develop the possible progression of learning through formative assessment tasks that will help students to be successful in their understanding of the central idea. The summative assessment that students undertake to show their understanding can be developed at a later date as the evidence and big ideas have already been established. Giving students the opportunity to decide what the summative assessment task could be would involve students at a planning level and cater for different learning styles. It would also help teachers differentiate between evidence and the summative task.

Also to be considered is the unnecessary breaking up of learning engagements and formative assessment tasks in section 3 and 4. Effective formative assessment strategies are entwined with the teaching and learning throughout the whole unit of inquiry and quite often are very difficult to tell apart from the 'lesson'. Separating these activities in section 3 and 4 can be confusing for teachers and bring a notion that assessment happens outside of learning and teaching.

This research identified the key strategies for effective formative assessment strategies, yet, very little of these key strategies can be found in any IB documents. It is recommended that the IB offer teachers more support by clearly outlining the different strategies that can be used in the classroom. Practical support for schools will ensure that the use of assessment in the classroom is focused on improving student learning. The IB should be commended for their online *Assessment in the PYP: Annotated Samples*. This document has proven valuable for encouraging teachers to see the range of ways assessment can be used in the classroom.

Conclusion

This study has shown the importance of teachers having the knowledge and understanding of formative assessment because of its importance for effective learning and teaching in the classroom. The action research at MIS helped in the development of different formative assessment strategies and how they play a role within the classroom. A considerable finding in this research was the important link between assessing, teaching and effective learning. The teachers who had naturally embedded formative assessment into teaching and learning ensured a smooth flowing lesson whereby students were constantly aware of what they were learning and what they needed to achieve to be successful in the lesson. The more confident teachers had the ability to entwine formative assessment into the lesson from start to finish. All of this, coupled with the teacher belief that formative assessment improves learning, gave students many opportunities to be more successful in their learning. The value of formative assessment cannot be over-valued and is likely to be a strong focus for teacher learning across the world in the coming years.

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